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CONTENTS

Editorial:

On Quackery as a Reversion to Primitive Medicine.

F. H. Garrison 601

ANNUAL GRADUATE FORTNIGHT: "DISORDERS OF
METABOLISM". October 23 to November 3, 1933.

The Wesley M. Carpenter Lecture:

The Influence of the Diencephalon and Hypophysis
Upon General Autonomic Function. Wilder

Penfield 613

Library Notes:

Bibliographical Department. H. Sayer..... 637

Recent Accessions 647

Report on the Sixth Annual Graduate Fortnight..... 649

Proceedings of Academy Meetings..... 652

Fellows Elected October 5, 1933..... 658

Deaths of Fellows of the Academy..... 658

Correction 659

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EDITORIAL

ON QUACKERY AS A REVERSION TO PRIMITIVE MEDICINE¹

Superimposed upon the metronomic Quack! Quack! Quack! of the accompanying bassoons, in the *allegretto* of Beethoven's *F* major symphony, is a mocking, pirouetting figure, which somehow evokes that rococo period in which European quackery began to flourish on a grand scale. The word "quack" came into English usage in the 17th century and was preceded by the expression "quacksalver" (1589), which, according to Grimm, derives from the Dutch *kvaken* or *quacken* (to boast) and *salver* (old High German *salbari*, physician). Whether the Latin *coaxare* derives from the *brekke koax* of Aristophanes and college yells, or from the authentic sound of the duck itself, there can be no doubt that quacks and quackery are associated in the mind's eye with the chesty appearance, measured gait and sententious utterance of the duck, as the traditional outward semblance of the bogus or sham doctor. Put a pair of spectacles on the bill of a duck and you have your quack-doctor to the life, both as to pomposity of demeanour and affectation of wisdom or words of wisdom.

¹Expanded from a seminary conference in the Institute of the History of Medicine, Welch Medical Library, Baltimore, Md., on April 26, 1933 (*Praeses*: Professor Henry E. Sigerist).

In early English usage, the phonetic ridicule was visited impartially upon impostors among the clergy and the luminaries of the law², as well as upon the medical profession. What was ridiculed, in each case, was the assumption of infallibility as to *remedies*, whether for bodily, spiritual, social or political ills. Early in the 18th century, and well into the 19th, this ridicule is transferred from the quack to his victim, who has already begun to take over the self-administration of medicines on his own account. Molière's *malade imaginaire* was victimized by virtual quacks (exquisite specimens of the type), but Bret Harte's Fool of Five Forks, who punishes his system with useless nostrums, is a kind of quack himself. Thus, in 1733, John Cheyne writes in *The English Malady*³: "The medicines I have only hinted at to prevent the quacking of patients themselves." By 1757, "I shall stay home and quack myself" was in common usage. In 1810, we have Jeremy Bentham's "Epitaph on a Valetudinarian, who quacked himself to death." Washington Irving, in Knickerbocker (1861), sums up the conclusion of the whole matter: "He who has once been in the hands of a quack is forever after prone to dabble in drugs." In 1876, Harriet Martineau adumbrates the perils attaching to psychiatric, psychotherapeutic and mental-hygienic tinkering: "The less its condition is quacked, the better for the mind's health."

Simultaneously with "quacksalver" and "quacking" appeared the expressions "mountebank" (*Ital. montar in banco*), "saltimbank" (*saltar in banco*) and "charlatan" (*Ital. ciarlare*, to babble, prattle or patter). And here we come upon *nuances* of considerable moment. The mountebank was not so much the dispenser as the seller of drugs,

²Thus, Richard Steele publishes in the *Tatler* (1710, No. 195) certain "Rules for Knowing the Quacks in Law and Medicine."

³Most of the illustrations from early English literature have been found ready to hand in that matchless repository of the historic usage of English words, the Oxford Dictionary; but the three basic types of medical imposture, specified herein, are better differentiated in the illustrative citations than in the definitions.

vaunting the merits of his nostrums from the hustings or from a wheeled conveyance, after the fashion of the *orviétan* vendor in Molière or the smooth protagonists of American "medicine shows", whether clad in buckskin and sombrero, or frock-coat with beaver or billycock hat atilt. Whatever has to be poked at people for sale is almost invariably a swindle, whence your mountebank, in all phases of activity, came to be recognized as a go-getter, who tries to "sell" something not worth having. Thus Gay, in the *Shepherd's Week* (1714) :

"The mountebank now treads the stage and sells
His pills, his balsams and his ague-spells;"

or Butler, in his effective thumb-nail sketch of the rabble-rousing species :

"He is a pedlar of medicines, a petty chapman of cures, and tinker empirical to the body of man. He strolls about to market and fairs; where he mounts on the top of his shop, that is his bank, and publishes his medicines as universal as himself; for everything is for all diseases, as himself is of all places, that is to say, of none. His business is to shew tricks and impudence; as for the cure of diseases it concerns those that have them, not him, farther than to get their money . . . He baits his patient's body with his medicines, as a rat-catcher does a room, and either poisons the disease or him. As soon as he has got all the money and spent all the credit the rabble could spare him, he then removes to fresh quarters, where he is less known and better trusted."

Your charlatan, on the other hand, is a verbose windbag, who pretends to knowledge or other intellectual properties he does not possess. As early as 1605, *ciarlatani* appear in Ben Jonson's "Volpone". Coryat, in his "Crudities", calls them "ciarlatans" (1611) ; Sir Thomas Browne makes the essential distinction between "saltimbancoes, quacksalvers and charlatans" (1656) ; and Butler writes "chiarlatans" in *Hudibras* (1678). In 1656, "charlatanerie" implied deception by cozening, gulling or lying statements. The basic distinction between charlatanry and quackery is already grasped by a writer of 1680: "Charlatans make diseases fit their medicines and not their medicines diseases." In 1766, Horace Walpole refers to the "charlatanerie of Rousseau." And here we come upon Aldous Huxley's

criterion of essential vulgarity in literature: to pretend to sentiments, emotions or passions one does not possess. Thus Lady Lytton, in "Behind the Scenes", refers to "the charlatanic shade of that great petty larcener of sentiment, Laurence Sterne" (1854). We have, then, three essential types of the medical impostor: the quack, who pretends to infallibility in the exhibition of remedies; the mountebank, who puffs and sells them; and the charlatan, the Doctor Know-all of Grimm's fairy tales, whose top-heavy assumption of omniscience ranges anywhere from parade of erudition⁴ to maundering about the ultimate nature of disease. Patient and public are gulled by quacks on the principle *crimen quos inquinat, aequat*; or in Stendhal's view: The existence of knaves connotes their dupes, and the world is made up of the twain—

"Fooled thou must be, though wisest of the wise."

"Quackery", in Sudhoff's dictum, "is but a theft from the most ancient phases of primitive medicine." In the light of the newer anthropology, this proposition may be taken as proved. The doctrine of the unity of folk-lore leads inevitably to that of the unity of folk-ways, of which the unity of folk-medicine is but a variant or corollary. In the view

⁴As erudition, or book-learning, is apt to be acquired at the expense of real or realistic knowledge, gained by actual experience, it sometimes merges into pedantic assumption of authority, intellectual and conversational bullying, or fussy concern about irrelevant details. The erudites of old did, indeed, have the air of taking all knowledge for their province and the wonder was, in Goldsmith's sly dig, "that one small head should carry all." The realistic scientific investigator of to-day simply taps the basic sources at need, knowing that it is impossible to read even the current literature of his specialty *in toto*. That mental activity can be derailed or bogged by too much reading is implicit in the German by-word: *Er hat sich dumm gelesen*. Some books are to be digested, others to be enjoyed; some to be tea-tasted, others to be ignored. It is doubtful even if historians of such broad scope as Haeser or Sarton have literally read the innumerable authors and texts they list and expound. To convey bibliographic information as to the historic significance of some texts is often more rewarding to the reader than evisceration of their content *in situ*.

of such advanced anthropologists as Sumner (*Folkways*), Elsie Parsons or Walter Scheidt, we need no longer worry about the multifarious field-work of professional ethnologists and explorers, but can generalize our equations to *n* dimensions: folk-ways throughout space and time converge in the end, to a certain lowest common denominator, varying among themselves in non-essentials attaching to environment. In primitive folk-medicine, this common denominator is the association of magic, mystic (theurgic) and empiric elements. "The first task of life," as Sumner said, "is to live. Man begins with acts, not with thoughts. Every moment brings necessities which must be satisfied at once. Need was the first experience and it was followed at once by a blundering effort to satisfy it." Out of this rude experimental process of trial and error came the folk-ways, which later crystallized into the more rigid pattern of the *mores*. Loose personal and social adjustments to environment became transformed into taboos and totems, which merge, on the higher level into laws and the rigorous, exclusive code of ceremonial etiquette. The ways of nature are broad and inclusive; those of man, narrow and exclusive. In his gropings toward reality, prehistoric and primitive man became a natural shock-absorber, "taking the rap" wherever he blundered, but later interposing his *mores*, social conventions and ceremonial code as a buffer between himself and the hostile forces of environment. To change his *mores* at this stage becomes a fearsome *salto mortale* or leap into the dark, the disinclination of an old dog to learn new tricks. The ceremonial code is now "a mitigating diversion from the change become inevitable" (Parsons). Thus, in Galsworthy's "Flowering Wilderness", the arrogant stupidity of a meddling old foggy turns a charming girl into a potential old maid and her affianced lover into a pariah, on the ground that his adoption of the Moslem ritual at pistol-point (of no more consequence than Richard Burton's case) has impaired the insulated status which is part of the white man's burden in the East. In reality, the *capitis diminutio* (never possible in strong-charactered people) is a boomerang effect

of the gratuitous veneer of extraneous culture superimposed upon native races, from superficial instruction in footless knowledge to familiarity with the machine-gun or the slapstick antics of the comic movies, whereby the erstwhile demigod becomes a clown. The disappointing effect of gratuitous benevolence and wrong-headed philanthropy is that it merely heightens the self-conceit of the recipient. In Turgenieff's fable, *le bon Dieu* introduces Benevolence to Gratitude: "it was the first time, since the world began, that the twain had ever met." People become spoiled, like little children, when they do not actually earn what they get⁵. An outstanding exception would be medicine and sanitation, which is advantageous to native and outlander alike, and is destined, perhaps, to be the valid civilizing agency of the future. The law of life is that of the Army: It is not what we want but what we get that counts. As animism was the activator of prehistoric and primitive art, so the *primitif* accounts for material happenings by personifying and deifying natural forces as a crude precursor of religion; the social *mores* are his equivalents of law and ethics; and magic, the effort to get beyond closed doors and on to the ground-floor of extra-human power, is the primitive equivalent of science. The primal law of development within the tribe is that of convergence to these lowest common denominators (*Elementargedanken*). Diffusion or convection of an exotic culture, by conquest, invasion or foreign immigration, is apt to be impermanent unless the native cultural level is uniformly high. The Hellenistic culture spread all over Asia by the Alexandrian invasion is now buried underground or exists in shreds and patches only. It is said that Elizabethville in Katanga (Belgian Congo), the richest copper terminal in the world, may become a *città morte*, patrolled by lions and hyenas, in consequence of the

⁵It is doubtful, for instance, if the millions expended by our government upon the Philippines, not to mention the billions squandered upon the more advanced nations of post-bellum Europe, have earned us aught but enmity and ingratitude. Whence the point and pungency of Bernard Shaw's greeting: "Hallo, you dear old boobs."

financial depression, and with it, the creature comforts and electric appliances brought in to the natives will vanish. Recent linguistic maps of France and Italy reveal the astounding fact that the vernacular expressions employed by the peasantry for ordinary objects are entirely different in the different departmental areas. English, French, German, Italian, as we understand these languages, are spoken and read by the cultivated or educated classes of their own or of other nations. The Romans, the greatest world-colonizers before the Spanish and the English, were well aware of the Horatian *caelum non animus*. The culture brought into Latin America and the Philippines by Spain has been assimilated *intus et in cute* by the cultivated natives, but have we really Americanized the Filipino any more than the English have Anglicized the Hindu? Will the Soviet really Russify Northern Asia? Considerations of this order are necessary to an understanding of the survival of primitive folk-medicine in the guise of quackery throughout space or time. The medical beliefs and superstitions of the *primitif* have a strong family likeness everywhere and converge to a common point of identity. The components of primitive medicine, as stated, are theurgic mysticism, magic and some shreds of empirical knowledge gained by actual experience. Primitive ætiology, pathology and diagnosis were theurgic or supernatural, centering in the infliction of disease by angered gods, demons, spirits of the dead or human enemies, adept in black magic. The natural was equated with the supernatural and *vice versa*. To cope with these supernatural agencies required extra-human potency or magic, the savage equivalent of science. Preventive medicine was thus apotropaic, centering in charms, spells and sacrificial offerings. Treatment was either psychotherapeutic (the stereotyped hocus pocus of the shaman or medicine man) or herbal. Even in Diacorides, the indications for many animal or vegetable remedies are mythologic, associated with the vernal gods responsible for the diseases and cures. "Don't remedies were dedicate. In course of time, we all the same a empiric knowledge of medical and surgery of them?"

gained by trial and error, and such facts constituted the raw materials of authentic science as we know it to-day. The error of primitive medicine in antiquity, as among living savages, lies in the confusion of mysticism and magic with science. The point of departure of scientific reasoning upon this matter, the point at which the methods of primitive medicine and quackery are perceived to be one and the same, is the Hippocratic tract on the Sacred Disease, the highest reach of Greek thought in medicine. To peruse this great document is to have the unique sensation of assisting at the emancipation of scientific thought. Here, we literally see Greek thought attaining, in Sudhoff's eloquent phrase, "to heights of freedom which science deserted, alas! at the risk of its very existence." Had it not been literally hundreds of years in advance of its time, this tract would have been the Declaration of Independence of rational medicine. Theurgy and magic are thrown down in favor of an interpretation of epilepsy as hereditary like other diseases, based, as Temkin shows, upon the Hippocratic schema of the blood supply, and this, however faulty, is perhaps the first brief ever filed for a rational pathogenesis. The thaumaturgists, who uphold the chthonian pathology of the neuroses, are denounced as impostors and we begin to realize that the only magic the quack employs is the magnetic or hypnotic effect of personality, that persuasive or suggestive power which Babinski implied in the expression "pithiatism". Pithiatism connotes suggestibility in the passive agent or patient and is at the bottom of Osler's witticism that physicians are the natural prey of financial sharks and high financiers of quacks. The human intellect is feeble or fallible in dealing with "unknown quantities which are not worth knowing."

If now, we run the gamut of quackery in the history of ~~mean~~ medicine, we can reduce the whole phenomenon to its lowest common denominator *via* the three categories specified. ~~European~~ Empedocles, in spite of the wonderful insight revealed in his poetic fragments, may have had, in his ~~revealed~~ ^{revealed} in his ~~in~~ ⁱⁿ costume, just the least infinitesimal general attitude and

soupeon of charlatanry. Quackery and charlatanry flourished in the streets of the Greek cities, while base-line or nosographic medicine (medicine as it might or ought to be) was exploited in the great literary texts. Mountebankery was rampant in the streets of Rome, as witness the *pharmacopola, mimae, balatrones, hoc genus omne* of Horace. The spells and charms in the Byzantine texts are redolent of pithiatism. The trade-tricks of Arabian charlatanry, as depicted in Steinschneider's reading of Rhazes, are still going strong in Persia and other Islamic areas. The mediæval edicts against the adulteration of drugs may be matched by the possibility of "substitution" in our own drug-stores. The uroscopists of the Dutch paintings were charlatans, the stone-cutters and healers of the *mal d'amour* quacks. The 18th century physicians, each with a pet theory of disease and a private, proprietary remedy all his own, had in them a touch of the charlatan and a touch of the quack. Ward's Pills, the remedy purchased from Joanna Stevens by act of Parliament in 1759, Perkins' tractors, Graham's Celestial Beds, were all exquisite examples of quackery. In the 19th century, quackery actually attained a legal status (*Kurierfreiheit*) in Germany, through the influence of Virchow; and it became an established convention that "every fashionable physician has in him something of the charlatan." Part of this notion sprang from the *clichés* necessary to every overworked practitioner, in fubbing off imaginary invalids, who may be, in reality, "strong as an ox and stupid as a log":

"Rest in bed, slop diet, facial massage, a steel tonic and a trip to the Riviera for Lady Jane." "Your mind is too active; you think too much; better relax a little." "Madame, you have a tired heart." "A summer in the Adirondacks would fit your case better than anything else I can name." "Ever try gardening?" "How about a little negus of sherry in your diet? Half a glass a day is the authentic English remedy for jangled nerves, you know." "Nothing so restful as the deck of a ship in my experience." "Don't work so hard: Time was made for slaves and it will be all the same a hundred years hence." "It is said that King Solomon had ten thousand wives and, I ask you, could he have been faithful to all of them?"

Sydenham put one patient on Don Quixote and sent another on a fool's errand to Edinboro, with good results in both cases. Baldinger, with the sardonic *enjouement* of the saturnine Prussian, got a patient into needful exercise by chasing him about with a loaded army pistol. I know of two male hypochondriacs sent to Osler, of whom one was disappointed because he could not get a diagnosis of floating kidney, the other, an imaginary ataxic, because the verdict was: "I see no signs of the disease." Nux vomica was prescribed in both cases. Charlatanry, nevertheless, has *nuances* manifold, some of them detectable by a gold leaf electroscope only. "Universal remedies", such as theriac or antimony or *orviétan*, imply quackery, while the footless logorrhœa of the older writers on disease was innocent (well-meaning) charlatanism. Hypnotism was merging into humbuggery at the Salpêtrière when Charcot began to back away from it in *La foi qui guérit*. It is a far cry from the bombast of Paracelsus to the bedside manner of Dieulafoy, who "at the death-bed of a *grand seigneur* became a *grand seigneur* himself." Plainer and simpler was, and must be the manner of the serious bedside thinkers, from Hippocrates, who made clinical pictures out of corrigenda, to Traube ("Wir haben nicht richtig gedacht") or Cabot, who placarded his own errors in diagnosis by public epicrisis of his post-mortems, or Potain, the Cottard of Marcel Proust's novel, of whose selfless simplicity it was written: *Et nous comprîmes que cet imbécile était un grand clinicien*.

In the post-bellum period, the vagaries and variants of unorthodox therapy, from chiropraxis and osteopathy to Couéism, have been legion, and as many alleged "cures" turned out to be of temporary duration, satire had long since been transferred from the irregular practitioner to his patient, as *particeps criminis*. In periods of prosperity, such as the Pactolian era of 1919-29, there are hundreds of people who want to be sicker than they are and who welcome even surgical operations to make their uninteresting selves interesting; as indicated by the falling off in physicians'

and surgeons' incomes during the depression. In flush times, many of these patients gravitate from the bored practitioner to the quack, who is himself an adept in exaggerating the gravity of any case that may come his way. There are three bits of imaginative literature which throw considerable light upon this curious enharmonic relation, whereby fool and rogue are but "opposite sides of the same medal" and sound virtually the same note. In Weir Mitchell's *Autobiography of a Quack*, we have the swindler of fluid, labile personality, taking the line of least resistance everywhere, not in the least surprised at his successes, indifferent as to harm done, indifferent even as to the fate of his own sister. In Thomas Mann's *Confessions of a Swindler*, a cabinet piece of surpassing merit, we have an exposition of the genesis of swindling comparable with Balzac's "*Pathology of Small Shop-Keepers*." A boy, of shady antecedents and negative, potentially labile character, is taken by his father to see a famous comic opera star. During the performance, he is carried away, like the audience, by the seeming male beauty and personal magnetism of the actor. Taken to his dressing room, after the show, he sees him as he is minus grease-paint, a coarse, repulsive brute, whose skin is covered with loathsome pimples. "This, then, was the love-thief who swayed multitudes, whose antics caused so many feminine hearts to thump well-nigh audibly under swelling bosoms and against expanding corsets." The disillusion sets the boy on the downward path, albeit with eyes wide open. He teaches himself to lie and steal, to feign woe-begone illness in playing "hookey" from school, to cultivate swindling as a fine art, up to his landing in jail. The rest is silence, for this fine literary performance has remained a torso. The supreme of satire, however, is attained in the farce, "*Knock or The Triumph of Medicine*," which its author, Jules Romains (Louis Farigoule), is said to have perpetrated out of pique over the indifferent reception of his study on extra-retinal vision. The hero, Knock, clerking it in a haberdashery at Marseilles, has the effrontery to apply for a vacant ship-surgeoncy, and is accepted. His success on

board, where people are, as a rule, surprisingly healthy, enables him to save enough money to study medicine. The motto of his graduating thesis is a sentence out of Claude Bernard: "The healthy are really invalids unaware of their illness." Upon this hint, Knock buys a practice from a retiring provincial doctor, and at the end of the play, has been so successful in persuading people that they are ill that several floors of the local hotel are filled with his patients, among them the original vendor of his practice. This is, in effect, "The Triumph of Medicine."

The success of the quack is due, then, to the suggestibility of his victims (pithiatism), to the *mundus vult decipi* (The public likes to be humbugged), to a primitive craving for the supernatural which is ever latent in man; and here folk-medicine and quackery are at one. "To folk-medicine," as Allbutt said, "doubt is unknown; it brings the peace of security." Rationalism abides on lonely heights, "where those who have scaled them live alone"; but the mental processes and self-deceptions of average humanity are irrational and therefore unpredictable. Swindling, whether in medicine, finance or other business, will be always with us, for the sufficient reason that we ourselves are gullible, in keeping with Schiller's dictum that the gods themselves can do nothing for stupidity. There is profound and subtle wisdom in the gnomic verse of Goethe:

"Sogar dies Wort hat nicht gelogen:
Wen Gott betrügt, der ist wohl betrogen"⁶

F. H. GARRISON.

⁶Either "Whom God deceives, he is deceived indeed"; or that we are to be taught and disciplined by the hard knocks of life: "Whom God deceives is fooled to ends divine."

ANNUAL GRADUATE FORTNIGHT

"DISORDERS OF METABOLISM"

October 23 to November 3, 1933

The Wesley M. Carpenter Lecture

THE INFLUENCE OF THE DIENCEPHALON AND HYPOPHYSIS UPON GENERAL AUTONOMIC FUNCTION*

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It is a graceful tribute to the memory of Wesley M. Carpenter that the President of the Academy of Medicine should make the lectureship which perpetuates his name a part of the Annual Graduate Fortnightly series. For Carpenter as an officer in many medical societies gave un-failing and distinguished service to the cause of medical education.

The honour of giving a Carpenter Lecture is as much appreciated by me as it is undeserved. With the flattering invitation from the Academy of Medicine to prepare this teaching lecture came the stern injunction that I was to speak plainly, in simple language—and yet the subject proposed is neither plain nor simple; a subject which at present is firing the imagination of physiologist and chemist, of prophet and of charlatan.

Hidden away in the mysterious hollow of the sella turcica lies a miracle-working gland whose reputed performances would have brought a blush of shame to the swarthy cheek of Aladdin. He never thought of trying to produce acceleration of growth, of sex function, of metabolism and of water drinking, or of suddenly inhibiting these processes. It did not occur to him that by rubbing up one side of his lamp he might summon an increased

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sugar tolerance, and by rubbing down the other side diabetes mellitus.

But this pituitary "lamp of Aladdin" as it hangs at the bottom of the infundibulum is not an isolated organ like other glands. Its posterior lobe is continuous with the infundibulum and with the diencephalon, that part of the brain which surrounds the third ventricle and includes potent autonomic centers. These centers, unobserved and unsuspected, have always regulated the vital processes of the body through peripheral sympathetic and parasympathetic pathways. Far from being isolated from the diencephalon we now find that the hypophysis is connected with it by a portal circulation of veins and we now suspect further that certain chemical principles distilled within the hypophysis may pass directly through the nervous tissue and into the third ventricle, there to bathe the paraventricular centers.

The most obvious pathological condition of the anterior lobe is neoplastic change and examples of these neoplasms will serve most easily to recall certain of the functions normally discharged by this doughty little gland. The mother cells or chromophobe cells of the anterior lobe differentiate into acidophilic and into basophilic cells and correspondingly tumors of three types have been described, i.e. chromophobe, acidophilic (or eosinophilic) and basophilic adenomas.

CLINICAL HYPOPITUITARISM

The most frequently encountered tumor of the pituitary is the chromophobe adenoma. In my opinion the cells of this tumor are not identical in appearance with the true mother cells of the anterior lobe. They differ morphologically but we need not tarry to quarrel with terminology. At all events these tumors seem to produce no hormone of themselves but by their slow expansion within the sella turcica they gradually destroy the hypophysis just as a craniopharyngeal pouch epithelioma may do from without the sella.

The resultant symptoms of this destruction are usually first gonadal. If the patient be a woman menses cease perhaps years before other signs appear. Sexual activity in the male is interfered with at a later stage. Experimental

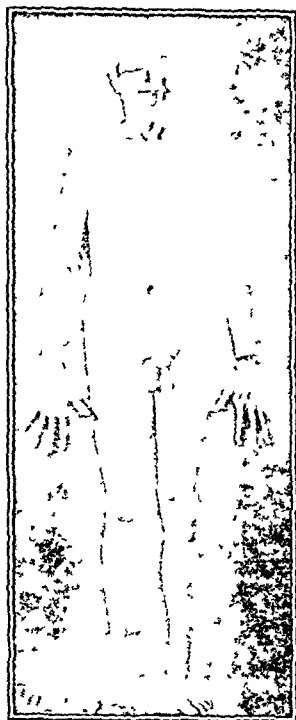


Fig 1. Case of chromophobe adenoma of pituitary with decrease in secondary sexual characteristics

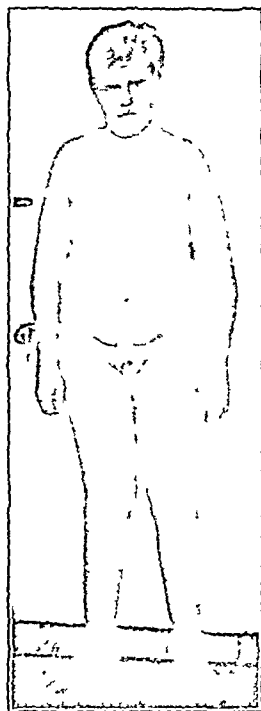


Fig 2 Example of hypopituitarism in a boy of 17 years Adiposogenital dystrophy of Frohlich (Kindness of Medical Department, Royal Victoria Hospital.)

hypophysectomy in animals results also of course in suppression of the oestral cycle and in atrophy of testicular germinal epithelium.

Hypopituitarism (Fig. 1) is thus best seen in such cases of partial destruction of the hypophysis manifested by decrease or disappearance of secondary sex characteristics, a pasty complexion and appearance of fat; this with decreased basal metabolism and arterial hypotension

related no doubt to the atrophy of thyreoid and of adrenal cortex demonstrable at post mortem examination.

Hypopituitarism in childhood (Fig. 2) produces the adiposogenital dystrophy of Fröhlich (1901) which was really first described by Babinski (1901).

CLINICAL HYPERPITUITARISM

Chromophile or acidophilic adenomas on the other hand evidently elaborate a substance capable of producing the growth changes familiar to all students of medicine as acromegaly. When such tumors begin before maturity typical acromegalic giants are produced. If they make their appearance later (Fig. 3) this caricature of growth

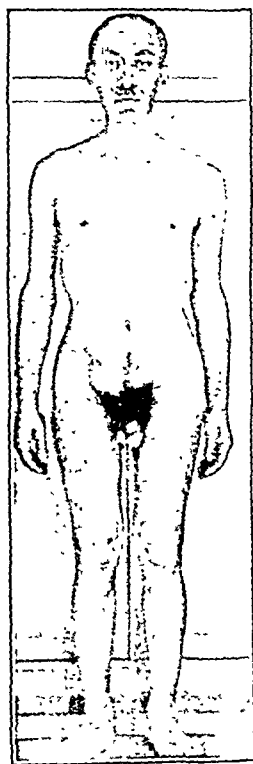


Fig. 3. Case of acidophilic adenoma of pituitary producing acromegalic changes in an adult. Picture taken two years after transfrontal removal of the tumor which resulted in an astonishing reduction in the manifestations of acromegaly. The secondary sex characteristics may be contrasted with Figures 1 and 2.

is superimposed upon an adult frame. The presence of these acidophilic cells is apparently invariable in the tumors associated with acromegaly. This fact may cast some light upon the acidophilic cells of the functioning gland.

Hypophysectomy in immature animals arrests growth almost immediately. That growth is really controlled by the anterior lobe is further borne out by the fact that a purified growth hormone has been isolated from the anterior lobe by Collip, Selye and Thompson (1933) and by Evans and his co-workers (1933). Furthermore, Evans points out that administration of this principle, if pushed after closure of epiphyseal lines, is capable of producing acromegaly in dogs, as previously shown by Putnam and Teel (1929).

The third type of adenoma is less easily assessed for its true value at the present time, i.e. basophil adenoma described by Cushing (1932).

These adenomas which are usually small produce their effect, according to Cushing, in part directly by migration of adenomatous basophilic cells into the parasympathetic centers in the vicinity of the third ventricle and in part through the local circulatory pathways. The neurotropic effect is said by him to be adiposity, hypertension and late vascular hypertensive changes. The patients (Fig. 4) have an over development of secondary sexual characteristics, become hirsute and show striations in the skin from rapid addition of subcutaneous fat.

Pituitary basophilism may be (and has been) confused with hyperadrenalism leading in several cases to exploration of the adrenal glands and indeed adenomas of the adrenal cortex have been encountered. It is not possible at the present time to make the assumption that the similar basophil cells of the pituitary concern themselves principally with the elaboration of a sex hormone or with the activation of parasympathetic mechanisms. Nevertheless, Cushing has called attention to a most important



Fig. 4. Case of verified basophilic adenoma of the pituitary; kindness of Dr. Cushing, pictured by him as the Kraus-Raab case.

group of cases in which there is evidently a polyglandular disturbance of which the initiating factor may well be the basophil adenoma.

But neoplastic cells usually differ from normal cells in activity as in growth and, in general, tumors of the pituitary are prone to produce a kaleidoscopic effect upon patients. This may be due to over-secretion of certain cells followed by under-secretion when the neoplastic compression increases. And this explains the findings of "fugitive acromegaly", of transient diabetes mellitus, of fleeting hyperthyroidism, of acromegalic giants who show late tendency to "adiposogenital dystrophy".

Another explanation of the fugitive endocrine phenomena may be found in the fact that injection of pituitary extracts sometimes seem to build up a resistance so that

the end result of such injection may be an effect opposite to the one desired.

CLINICAL APITUITARISM

Epitheliomas of the craniopharyngeal pouch most often produce hypopituitarism with adiposogenital dystrophy early in life as they press down into the sella turcica gradually destroying its contents (Fig 2). These tumors may go further to complete destruction of the gland resulting in hypopituitary dwarfism of childhood, and in the pitiful emaciated adult sufferers from so-called Simmonds' disease (Fig. 5A-5B). Experimental hypophysectomy fully bears out the findings of clinical hypopituitarism and Smith has described a cachexia resembling that of Simmond's disease produced by experimental hypophysectomy.



Fig. 5A. Case of pituitary cachexia (Simmonds' disease) due to tumor shown in Figure 5B. It was considered that she represented complete apituitarism but at necropsy a very small flattened remnant of the hypophysis was still present.

ANTERIOR PITUITARY EXTRACTS

A clearer picture of the activity of the anterior pituitary lobe [perhaps a little too clear!] is emerging from the studies of the biochemists who have now isolated (1) a thyreotropic principle and (2) an adenotropic extract.

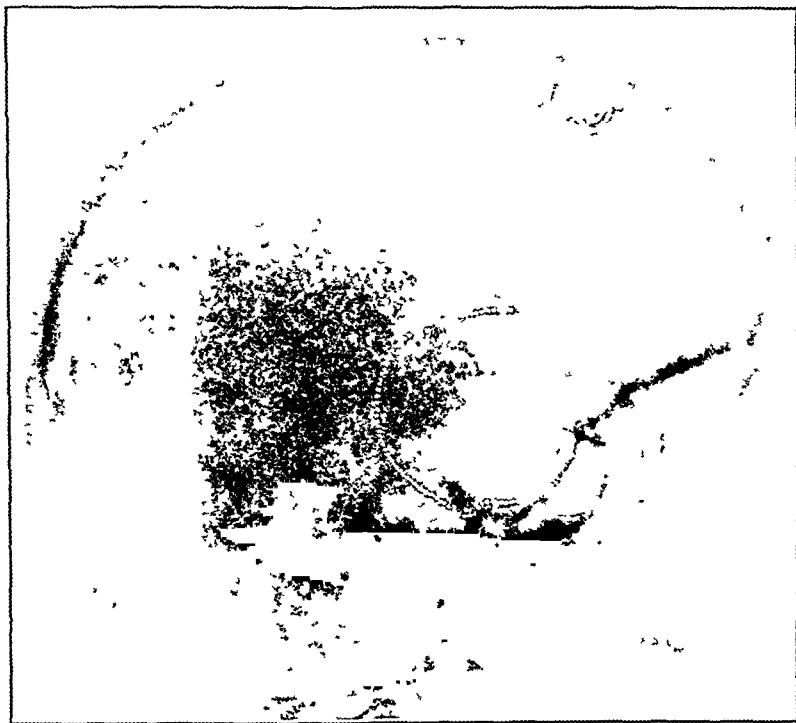


Fig. 5B. Same case as Figure 5A. The dotted outline indicates the partially calcified capsule of a craniopharyngeal epithelioma

In substantiation of this some clinical evidence is also at hand that over-activity of the pituitary is associated with hyperplasia of the thyroid and of the cortex of the adrenal, and conversely that hypopituitarism is associated with atrophy of these glands. The increased metabolism usually associated with an active chromophile adenoma of acromegaly has as its probable cause increased activity of the thyroid while the low basal metabolism and low blood pressure of hypopituitarism may well have deficient activity of thyroid and adrenal as their immediate cause.

Biochemists have further isolated (3) a growth extract, (4) a lactogenic hormone, (5) a gonadotropic element and (6) possibly a diabetogenic principle.

These elements express most clearly the multiform activity of the normal functioning anterior lobe but their separation does not necessarily indicate the existence of such hormones circulating in the blood. Collip (1933) suggests that the number of true hormones in the gland is very limited, that in the process of extraction certain active groups are released from "a master protein molecule". Clinicians, he concludes, will have to use not one, but various combinations of these active substances as indicated in the particular case.

Professor Collip evidently does not dream how deeply rooted in the hearts of what we may call the *adenotropic* clinicians was the practice of administering, not one, but many extracts long before true extracts existed.

DIENCEPHALON

The diencephalon* (called also interbrain or tween brain) surrounding as it does the third ventricle and including thalamus, hypothalamus and infundibulum is a very old portion of the brain being well developed in the lowest vertebrate forms which possess little or no fore-brain. Without daring to stop for a detailed anatomical discussion I may point out only that lying beneath the walls of the third ventricle are the supra-optic nuclei and the nuclei of the tuber cinereum (Fig. 6—S and T) which seem to be closely associated with the posterior lobe of the pituitary being connected with each other by afferent and efferent fibers.

This complex Beattie (1932) has labelled the anterior mechanism. He might perhaps have borrowed from Cushing the term "neurohypophyseal" mechanism. There

* Excellent analyses of autonomic representation within the brain have been provided by Greving (1928), by Huber and Crosby (1928) and most recently by Beattie (1932) and Josephy (1932).

is some evidence that this anterior group of nuclei may deserve the adjective parasympathetic because of the relationship of the tuberal nuclei to the craniosacral division of the autonomic nervous system with its peripheral control through vagus and pelvic nerves.

The posterior group of nuclei (P, Fig. 6) located in the walls of the posterior portion of the third ventricle above the corpora mammillaria are said to contain the sympathetic centers. Efferent tracts composed of short neurones which pass downward through brain stem and

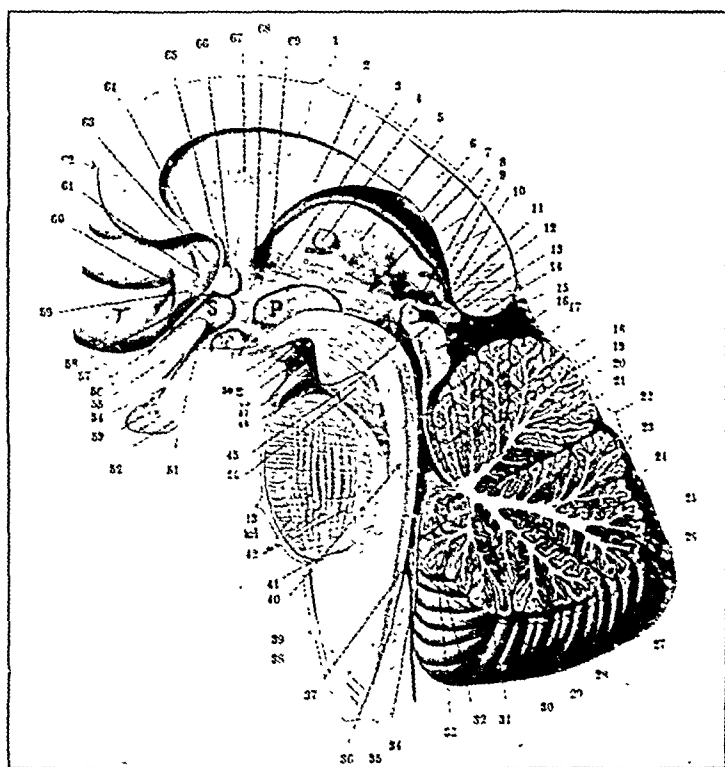


Fig. 6. Diencephalon after Sobotta. S=supra-optic nuclei; T=tuberal nuclei; P=posterior hypothalamic nuclei as indicated by Beattie.

cord are assumed for both anterior and posterior complexes. But in the case of the posterior group a sympathetic pathway was actually followed by Beattie, Brow and Long (1930) from this region down the posterior longi-

tudinal bundle and cervical cord, through second, third and fourth thoracic anterior roots to the stellate ganglion and thence to the heart.

The afferent tracts so far demonstrated to these centers are chiefly derived from diencephalon and from forebrain. It seems somewhat surprising that the afferent pathways should come from "headward" regions. It may be that forebrain and thalamus form stations on the pathway from periphery to hypothalamic centers. But it is also evident that what may be considered afferent impulses reach these centers through the blood stream. For example, if the blood entering the thalamus be raised above the normal temperature there is a response from the nervous mechanism in the vicinity which results in a discharge chiefly parasympathetic which lowers the general temperature by sweating, vasodilatation and diminished oxidation.

Attention must be called also to the existence of a portal system of veins which pass upward from both anterior and posterior lobes of the hypophysis through the infundibulum (Popa and Fielding, 1932, see also Basir, 1932) where they break up into a secondary distributing net beneath the infundibular recess of the third ventricle. Further, a colloid substance has been described in these veins by Collin (1928), (also by Popa and Fielding, 1932 and by Cushing, 1933). This finding makes it evident that much of the hormonal material from the pituitary may act directly upon the nervous system and in particular upon the so-called parasympathetic centers of the diencephalon. There is, however, a partial drainage into the general circulation by way of the cavernous sinus which is derived chiefly from the sinusoids in the anterior lobe. Innervation of the posterior lobe is by nerve fibers from the supra-optic and tuber nuclei while the anterior lobe is innervated by fibers derived from the carotid plexus (Dandy).

In January, 1928 I was fortunate enough to have under my care at the Presbyterian Hospital in this city a patient with a small, discrete, encapsulated tumor so placed that it impinged upon the anterior and superior portion of the



Fig. 7. Encapsulated tumor compressing anterior portion of thalamus of both sides and causing diencephalic autonomic epilepsy (from Penfield, 1929).

thalamus of each side, as shown in Figure 7. She was subject to recurring seizures which resembled epileptic attacks excepting that the manifestations of the attack were confined to the realm of the autonomic nervous system. The case was published under the heading Diencephalic Autonomic Epilepsy.

An epileptic discharge is a gross revelation of the function of an area, somewhat in caricature no doubt, but the true features of function are there to be scanned (Jackson, 1931) by him who can read as Hughlings Jackson did. The epileptic phenomena which I shall recount in order of their habitual appearance may therefore reveal to us the function of this region. We may think of the disturbance spreading downward and backward from the tumor site.

1. Prodromal restlessness and sometimes a desire to void.
2. Sudden intense vaso-dilatation of skin of face, arms and breasts.
Sudden rise in blood pressure from 110 up to 200.
3. Lacrimation.
Diaphoresis.
Salivation

Dilatation (or contraction) of pupils.

Protrusion of eyes (not invariably present).

Increase of rate and of pressure of pulse.

Marked retardation of respiratory rate.

(Elicitability of pilomotor reflex).

4. Disappearance of superficial blush and fall of blood pressure, slowing and weakening of pulse.
5. Hiccoughs (from 3-5 in number).
6. Transient shivering.

During the present year I have had under my care at the Royal Victoria Hospital three other cases who showed certain features of autonomic epilepsy. One of these may be mentioned here; a woman of 29 with a tumor involving the under surface of the left temporal lobe and extending to midbrain and thalamus. She had recurring slight attacks consisting of sudden headache followed by yawning and hiccoughing and sometimes associated with patchy erythema in different areas of the body.

There was one attack of greater severity characterized by a rise of blood pressure to 200 over 90 whereas the usual level approximated 100 over 70. With this there was a simultaneous rise of pulse rate to 130, flushing and appearance of irregular erythema over chest and thighs, spontaneous appearance of goose flesh, slowing of respirations to 4 per minute, salivation, lacrimation, dilatation of left pupil and contraction of right.

This description tallies sufficiently with the first to make it clear that we are not dealing with a discharge of a parasympathetic system alone as Cushing concludes in reviewing the first case (1932-a p. 84). It is an explosive indiscriminating discharge which betrays the spacial relationships both of parasympathetic and sympathetic function. The dilatation of peripheral vessels and sweating might be considered as parasympathetic in nature but the pilomotor response and increased pulse rate, increased blood pressure and protrusion of eyes obviously belong in the sphere of the sympathetic.

since the work of Bochefontaine in 1876. And Watts and Fulton* inform me that intussusception follows excision of the pre-motor cortex in the monkey concluding that this region exerts an inhibitory influence upon peristalsis. The removal of this area seems to permit focal ringlike intestinal contractions to form which tend to produce intussusception. Whether the center that is released may be the diencephalic parasympathetic centers of Cushing and of Beattie is open to conjecture.

Finally Cushing has observed in man that intraventricular injection of pituitrin or of pilocarpine both of which, he assumes, act upon the paraventricular parasympathetic centers selectively, produced an effect upon the stomach characterized by hypertonicity, hypermotility and hyperchlorhydria in addition to diaphoresis and fall in body temperature.

Temperature control. It is a fact familiar to all physiologists that the decerebrate animal whose brain has been removed down to the anterior end of the midbrain has lost ability to control its temperature and if its life is to be preserved elaborate thermostatic regulation is necessary (Bazett and Penfield, 1922). As the result of a bout of running movements or for some other reason the temperature may rise uncontrollably and the animal be destroyed as though, in a way, it had been the subject of spontaneous internal combustion. Unilateral decerebration at the usual Sherringtonian level mentioned above does not destroy the control mechanism as I have kept such a cat for over six months and it controlled its temperature quite well even through the vicissitudes of an English winter. Further, if in addition to the midbrain the major portion of the diencephalon be left intact as in Goltz's dog, temperature control is preserved.

Within the hypothalamic area are situated the circuits which discharge this most important function automatically and every neurosurgeon knows to his sorrow that to

* Personal communication.

disturb a tumor in this region may arouse that "bête noir" of hyperthermia which results in death within a day or two. Such a death is preceded by steadily rising temperature with peripheral vasoconstriction, rising pulse and rising respiratory rate—a syndrome called hyperthermia for want of a better name. It seems to be an acute disorder of the mechanisms which ordinarily preserve an even temperature.

Sleep "that knits up the ravelled sleeve of care" has hidden itself away from scientific exploration. Hess (1932) has recently tried to surprise it within the diencephalon. He points out that in profound sleep the deep reflexes are absent, carbon dioxide is increased in the blood stream to a level which would stimulate the respiratory center of a waking individual. Food assimilation is increased, heart rate slowed, body temperature reduced. In other words, he urges, there exists during sleep a parasympathetic dominance. Further evidence of this dominance is the fact that in sleep the pupil becomes contracted. This contraction gives way to dilatation, paradoxically enough, when the sleeper is awakened even though it be done by shining a light into his eyes.

Zondek and Bier (1932) claim that a sleep producing bromine compound (bromhormone) is formed by the pituitary gland which empties itself of this beneficent substance during sleep. The result of this emptying is said to be that an increased amount of the material may be detected in the medulla oblongata at that time.

In an attempt to prove his theory of parasympathetic dominance in sleep Hess selected a drug, ergotamine (Sandoz), which inhibits the sympathetic system peripherally and activates the parasympathetic. This he injected into the third ventricle. The result was apparent sleep with pupillary contraction. This contraction gave way to dilatation under the influence of light as in the case of true sleep. He then went one step further. Placing a very small enamelled steel bipolar electrode in the brain and allowing the animal to recover from the operation, he

found by using a pulsating direct current that he could put the animal to sleep. But this effect could be produced not from a small "sleep center" but from a series of areas distributed through the extra-pyramidal motor system. Sleep, he concludes, is at all events a positive phenomenon arising deep within the brain.

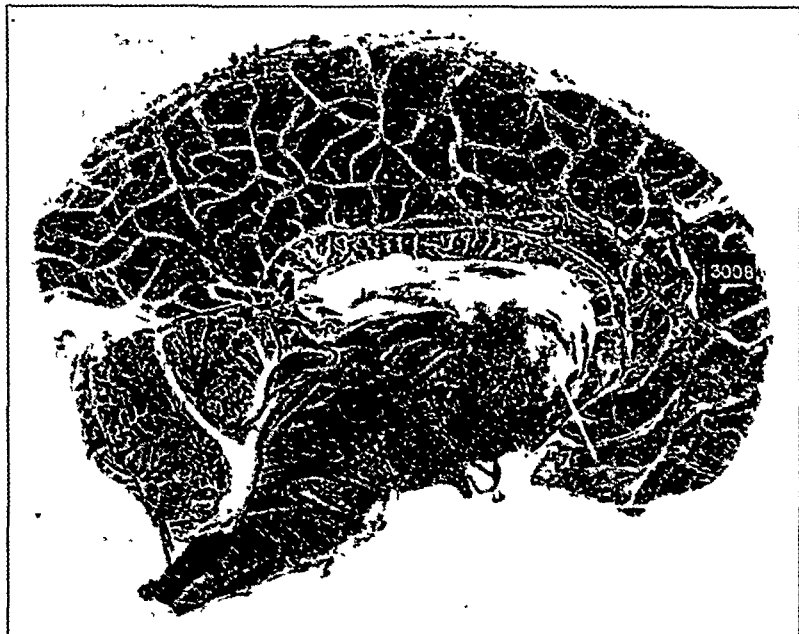


Fig. 8A. Tumor in anterior portion of thalamus producing "unconquerable sleep."

From a clinical point of view much work has accumulated upon narcolepsy. I will ignore this literature but refer to a patient* who for eighteen months before his death suffered from an "unconquerable tendency to fall asleep". He was the chauffeur of one of my associates! There was little else in the history and we saw the poor fellow repeatedly. He would fall asleep during a conversation. Figures 8A and 8B show the site of his tumor.

* This case will be reported in detail by my associate, Dr. William Cone.

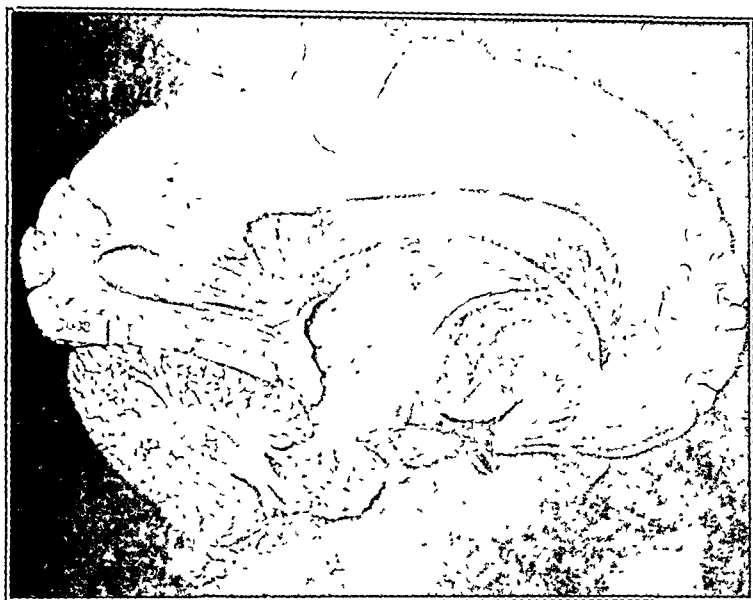


Fig. 8B. Same tumor as 8A at deeper level to show circumscribed character.

Lesions of this sort do not give rise to chronic irritation and, unless there are epileptic seizures, the effect of such a tumor can only be paralytic. In this case one may assume that the tumor in the anterior portion of the thalamus has released the sleep mechanism below it from a normally inhibitory control.

Water Balance. The condition known as diabetes insipidus is characterized by polydipsia and polyuria. This condition may be produced by lesions of the tuber cinereum when the hypophysis is left intact as shown by Bailey and Bremer (1921), (also Camus and Roussy, 1922). Clinically it is encountered most often as the result of a suprasellar tumor. The condition can be controlled almost at once by injections of posterior lobe extract which is a further evidence of the interaction of the pituitary and the paraventricular nuclei.

It was first suggested by Herring (1908) on histological grounds that secretion from the pars intermedia and from

the posterior lobe might reach the ventricle by passage through the infundibulum, and Lucien (1909) suggested that the basophilic cells which are found in the posterior lobe and infundibulum all the way to the ventricle were actually cells which had migrated upward from the "adenohypophysis."

Numerous workers have found in fluid from the cisterna magna (but not in lumbar fluid) an oxytocic substance which increases contraction of excised uterus as pituitrin would do (Karplus and Peczenik, 1930). Further a substance is found in the fluid which causes melanophore cells in the frog's skin to expand so that the skin becomes darker. Karplus and Peczenik found that direct stimulation of the hypothalamus served to increase this oxytocic substance which they believed to be pituitrin. This increase takes place even after sympathetic nerves are cut.*

The suggestion comes to mind, of course, that a lesion situated in the tuber because of its position forms a block to the upward passage of a pituitrin-like substance. But we are in the end left with no certain knowledge except that diabetes insipidus is produced not by an intrasellar lesion but by a suprasellar one, while the specific therapeutic agent, i.e. pituitrin or one of its derivatives, can be made not from tuberal tissue but from the posterior lobe of the hypophysis.

Carbohydrate metabolism. In 1858 Claude Bernard was seeking to find in the vagus nucleus a nervous mechanism that had to do with glycogen formation when he first punctured the floor of the fourth ventricle. He was surprised to find that it produced transient glycosuria. This puncture of Claude Bernard was the earliest proof that diabetes might be dependent upon a disorder of the central nervous system. It has since been shown by Aschner that puncture higher up in the hypothalamus would also produce

* It must be added that van Dyke and Bailey believe the oxytocic substance to be in fact only an increase of calcium within the fluid. They found this increase both in lumbar and cistern fluid, however.

glycosuria. It is, further, common knowledge that a severe emotional upset can give rise to transient glycosuria and that anaesthesia may have the same result

Tumors of the nervous system if situated near the third ventricle may be associated with diabetes mellitus as in the carefully studied case of Byrom and Russell (1932). Van Bogaert reported two cases of tumor involving the infundibulum in which there was hyperglycaemia without glycosuria.

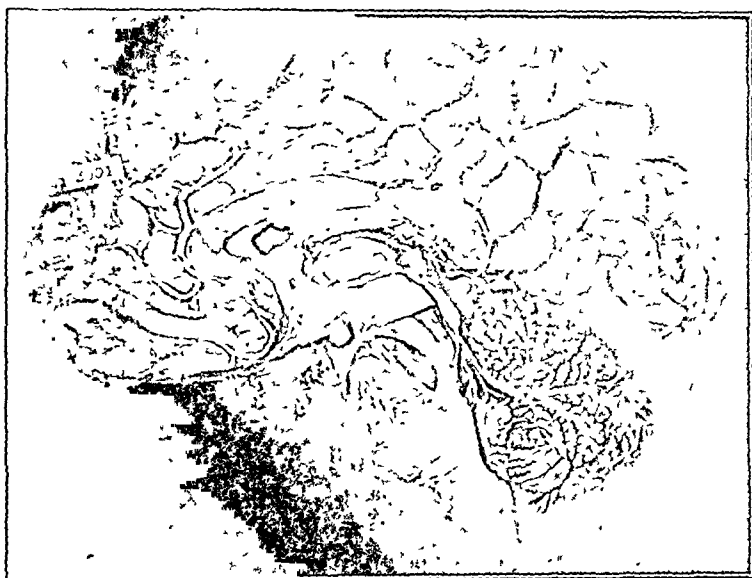


Fig. 9. Case of diabetes mellitus with cyst in midbrain; kindness of Medical Department, Royal Victoria Hospital.

I may also mention a most interesting case* of diabetes mellitus of five years' standing in which Dr. E. H. Mason found that insulin had little effect in curbing the glycosuria. Autopsy showed in addition to degeneration of the pancreas the cyst of the midbrain shown in figure 9. A lesion in the vicinity of the descending autonomic pathways was actually suspected before death.

* To be published fully by Dr. E. H. Mason.

But even more significant of a higher control is the oft reported association of diabetes mellitus with acromegaly (25 per cent of cases according to Davidoff and Cushing). The diabetes which is thus produced is not progressive and may disappear. The acidophilic adenoma of acromegaly seems to produce a sort of hyperpituitarism. The diabetes mellitus which may result might well be the result of the presence of an excess of some pituitary product.

On the other hand tumors of other types which compress the pituitary and adjacent ganglia tend to produce hypopituitarism and may be associated only with increased sugar tolerance. Such a patient can, of course, ingest over 100 grams of glucose without the glycosuria which would appear in the normal subject.

The explanation offered is that the pituitary and its associated hypothalamic nuclei exert normally an inhibitory influence upon the islets of Langerhans or upon insulin itself so that a defect in this inhibitory action renders more insulin available and therefore gives to the patient an increased glucose tolerance.

In experimental hypophysectomy dogs show a normal blood sugar level but if they are starved sudden hypoglycaemic crises are apt to occur which may be fatal. Similar severe hypoglycaemia in clinical hypopituitarism has been reported by Wilder (1930). Furthermore, hypophysectomized dogs are hypersensitive to insulin (Houssay and Magenta, 1929) which might be expected if the removal of hypophysis had also removed an inhibitory influence upon insulin.

Additional evidence which points in the same direction is the recent demonstration from the Argentine School (this time Houssay and Biasotti, 1931) that hypophysectomy decreases the severity of diabetes so that dogs after complete pancreatectomy may survive six months whereas controls with normal hypophyses died in one to four weeks with severe diabetes. Thus hypophysectomy may yet be proposed to some unsuspecting neurosurgeon as a cure for diabetes mellitus.

In toads pancreatectomy produces very severe diabetes. If the pituitary or even only the anterior glandular portion be removed pancreatectomy has little effect. But if now anterior lobe be implanted beneath the skin, next day an intense diabetes with glycosuria and hyperglycaemia occurs and finally Houssay (1932) has produced the same effect by injection of anterior lobe extract. Barnes (1933) has verified this work and obtained the diabetogenic effect with both the growth and the thyreotropic fractions derived from anterior lobe.

The inhibitory action of anterior lobe upon insulin seems established but it has not been shown yet whether it acts through the general blood stream or whether its effect is directly exerted upon the diencephalon which may in turn exert the inhibitory action upon the pancreas through the vagus. There is in fact evidence which favors the vagus as the final common diabetogenic pathway.

Finally it may be suggested that possibly the control of the liberation of the diabetogenic principle from the pituitary may be found to lie in the diencephalon itself. In this diabetogenic activity may lie an explanation of some of the discrepancies that exist between the clinical findings of diabetes mellitus and the pathological state of the pancreas at autopsy.

Certain principles are emerging from the obscurity that has cloaked the diencephalon and hypophysis and the internist may now lift his eyes to the nervous mechanisms which unsuspected have always co-ordinated the vital processes and preserved the internal environment.

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LIBRARY NOTES

BIBLIOGRAPHICAL DEPARTMENT

Since 1927, when the Department was established, almost 600 bibliographies have been compiled. Perhaps it would be more correct to call these simply "Lists of references", since in very few cases are they complete bibliographies of the subject. They are made to fulfill the requirements of the persons who order them and in some cases to supplement bibliographies already made. Often they cover a limited number of years (five, ten, or in some cases merely "the most recent references" being specified). They may include only articles written in English, often only in English and German; seldom are all languages included.

Carbon copies of all bibliographies are kept in the library. They are catalogued and may be consulted by anyone who wishes to see them, but may not be taken from the library.

Besides the compiling of bibliographies the department has checked and corrected probably an equal number and put them into the required form for publication. It has also edited and typed medical papers. All this type of work is classed under general bibliographical service and a charge of \$1.00 an hour is made for it. Fellows of the Academy, however, may have all work done for half this price.

In addition to this service, translating and abstracting are done. The price of full translations is based on the number of words in the original article and the rate is \$7.50 per 1,000 words. Abstracting is done on an hourly basis, at a rate of \$1.50 per hour. The half price rate for Fellows mentioned above holds good for this work also. Articles written in English are not abstracted.

H. SAYER

BIBLIOGRAPHIES MARCH, 1927 TO MARCH, 1933

1. Headaches.
2. Gum acacia.
3. Fat.
4. Gallbladder disease simulating gastric ulcer.
5. Vulvovaginitis in children.
6. Regional anesthesia.
7. Lead treatment of cancer.
8. Intestinal obstruction.
9. Color schemes for hospital rooms.
10. Facial paralysis due to mastoiditis.
11. Soft calculi.
12. Healing of mastoid wounds.
13. Focal infection in gynecology.
14. Liver diet in pernicious anemia.
15. Thyroidectomy: preoperative and postoperative.
16. Shock and acidosis.
17. Lymphosarcoma of the throat.
18. Pelvic kidneys: urological aspect.
19. Respiratory apparatus since Haldane.
20. Telephone: effect on hearing.
21. Vitiligo, or, leukoderma.
22. Pelvic kidney: connection with normal labor.
23. Dr. Adolf Berger: publications since 1913.
24. Epiphysitis.
25. Thrombo-angiitis obliterans; rhizomelic spondylosis.
26. Blood changes in Hodgkin's disease, etc.
27. Colon: surgery.
28. Cancer of fundus uteri with pregnancy.
29. Tumor cells in body fluids.
30. Ratbite fever (Sodoku).
31. Postgraduate medical education.
32. Dr. D. B. Delavan—1874-1926.
33. John Hughlings Jackson—1861-1902.
34. Ophthalmological, rhinological, laryngological and otological journals of 1927.
35. Neurology: periodicals current in N. Y. A. M.
36. Quinidine sulphate.
37. Thyroid, Tuberculosis of
38. Osteomyelitis of upper jaw.
39. Hematuria.
40. Streptobacillus.
41. Actinomycosis of genital tract.
42. Tuberculosis and pregnancy.
43. Streptothrix infection.
44. Neuropsychiatric patient: after-care.
45. Prevalence of heart disease.
46. Drug addicts and treatment.
47. Gold inlay work.
48. Fixed and removable bridge work.
49. Caecum, non-descent.
50. Vertebral cellulitis and cervical rheumatism.
51. National medical social agencies.
52. Agranulocytic angina.

53. Preventive medicine of ear, nose and throat.
54. Fetal peritonitis.
55. Maturin test.
56. Suprarenal hemorrhage.
57. Cervix tuberculosis.
58. Gas bacillus in uterus.
59. Nasal septum, perforation.
60. Echinococcus cysts of the bone.
61. Temporal bone-abscess.
62. Vaccination laws and epidemics.
63. Aesculapius.
64. Tetanus after abdominal operations.
65. Nasopharyngeal fibroma, treatment.
66. Pons Varolii: sensory and motor paths.
67. Abruptio placentae.
68. Gas bacillus gangrene of lower extremities.
69. Syphilis: prevalence.
70. Puncture of cisterna magna.
71. Climates of Florida, Arizona and Bahamas.
72. Animal vaccination.
73. Feeding vegetables to children under 6 months of age.
74. Cancer and diabetes.
75. Abdominal influenza and acute appendicitis.
76. Hysterectomy.
77. Cardiac thrombi in newborn.
78. Puerperal salpingitis.
79. Melanosis oculi.
80. Bilirubin in the serum.
81. Tuberculosis of mesenteric glands.
82. Fractures of the wrist.
83. Osteoporosis of carpal bones.
84. Malignant disease in children.
85. Intramedullary bone-grafts.
86. Relation of venereal disease to delinquency.
87. Jews: diseases and anthropology.
88. Prevention of nervous and mental disease.
89. Bibliography of Dr. William Darrach.
90. Mammalian and non-mammalian blood corpuscles.
91. Anencephalus.
92. Benign tumor of breast in combination with malignant.
93. Facial hemiatrophy.
94. Disorders of digestion of neural origin.
95. Rufus of Ephesus and Archigenes of Apama.
96. Dehydration or inanition fever of newborn.
97. Subacute endocarditis in children.
98. Electrocardiogram in normal children.
99. Arsenic as cause of optic neuritis.
100. Vesical fistulae: operations.
101. Fallopian tubes: patency tests.
102. Duodenal ulcer in the young.
103. Gastric ulcer in the young.
104. Herpes of the mouth and stomatitis.
105. Ethylene for anesthesia.
106. Diabetes mellitus, inheritance.
107. Osteomyelitis.
108. Tuberculous ulcers of stomach and duodenum.
109. Early carcinoma of body of uterus.
110. Charcot-Leyden crystals: illustration.
111. Salivary calculi.
112. Harben lectures.
113. Varicosities of vagina, etc.
114. Americans bringing French School medicine to U. S.
115. Argyria following Ag-arsphen-amine.
116. Urine in benzol poisoning.
117. Traumatic pneumocephalus.
118. Mensinga's pessary.
119. Sterilization: history.
120. Obstetrical analgesia.

121. Avertin in obstetrics.
122. Gauze packing in operative work.
123. Chinosol.
124. Use of cautery in treatment of cancer.
125. Adrenalin leucocytosis.
126. Poikiloderma atrophicans vasculare.
127. Hypochlorites, Lysol, Glyco-Thymoline, Lavoris and Listerine.
128. Bibliography of Dr. Victor Hugo Jackson.
129. Bibliography of Dr. John Martin Wheeler.
130. Traumatic epilepsy.
131. Noma.
132. Muscle tone.
133. Sodium perborate.
134. Gold in the treatment of lupus erythematosus.
135. Dirt eating.
136. Sarcoma of uterus, developed from fibromas.
137. Absence of hemorrhage as symptom in uterine fibroids.
138. Tobacco and nicotine. Physiological effects.
139. Endometriosis (1924-1928) (revised to 1932).
140. Electrocardiography in connection with angina pectoris.
141. Obturators.
142. Condensed milk in infant feeding.
143. Anthrax spores.
144. Treatment of cervical adenitis with X-ray and Ultra-violet ray.
145. Cautery in malignant tumors in veterinary medicine.
146. Bone metastases in melanosarcoma.
147. Specific gravity of lymph.
148. Recent workers on bacteriology of arthritis.
149. Increase of weight after hospital treatment of children.
150. Psychology of the aged.
151. Meningococcus bacteremia.
152. Harvey tercentenary.
153. Vitamines.
154. Chinosol—use in dentistry.
155. Syndrome—derivation, pronunciation, usage.
156. Diseases of liver and gall bladder.
157. Perimetritis. 1926-1928.
158. Bibliography of Hans T. Clarke.
159. . . . Ductus endolymphaticus and ductus cochlearis.
160. Diverticulum of lower oesophagus . . . cardiospasm.
161. Injuries to the kidney . . .
162. Luminal poisoning.
163. Treatment of cancer of breast by irradiation.
164. Pathology of middle ear in infants.
165. Visual hallucinations in brain tumors.
166. Peripheral iridectomy in cataract extraction.
167. Branchial cleft cysts and tumors.
168. Academies of Medicine and Colleges of Physicians and Surgeons in Europe.
169. Syringomyelic syndrome in developmental defects of the spinal cord.
170. Yellowish-white spots in hemorrhage of back of eye.
171. Precancerous dermatoses (German and English).
172. Angina pectoris (1927-1928).
173. Coronary thrombosis (1918-28).
174. Rupture of the heart (1927-28).
175. Bone surgery . . . toleration of foreign substances.
176. Relation between oils and tumors (1920-1928).
177. Congenital bone syphilis. (1810-1928).

178. Manuscripts and editions of early medical writers.
179. Sex ratio in twins.
180. Pulmonary circulation in pneumothorax.
181. Pulmonary circulation in atelectic, fetal, pneumonic and consolidated lung (including tuberculosis).
182. Spinal anesthesia in thoracic surgery.
183. Brain and old age.
184. Brains of famous persons.
185. Dr. Carlos Chagas.
186. Tank for compressed air.
187. Pulsating exophthalmos (traumatic).
188. Head colds and pyuria in children, acriflavine.
189. Relation of tonsillitis to appendicitis.
190. Organic elements in air—air analysis.
191. Relation of glioma to traumatic brain injury.
192. Electrocoagulation in tonsillectomy.
193. Effect of X-rays on fetus
194. Rigor Mortis (1909-1928).
195. Vanadium.
196. Sex feeling (libido) after Sterilization, Hysterectomy, Ovariectomy.
197. Books and articles by Delherm and Laquerriere.
198. Multilocular Ovarian Cysts. (1914-1928).
199. Dental Journalism (1839-1922).
200. Sterilization of Women. Medical Aspect.
201. Sterility (1890-1928).
202. Dental Journals in the U. S. and Canada.
203. Pay Clinics.
204. Bagnoles-de-l'Orne.
205. Bacteriology of the Prostate (1898-1928).
206. Value of enterostomy in Intestinal Obstruction (1911-27). (Experimental work only)
207. The Cervix in Labor (1923-28). Vaginal Cesarean and Cervical Incisions
208. Interstitial Pregnancy (1914-1928)
209. Dr. Newton Melman Shaffer.
210. Dr. James Wood McLane
211. Coagulation diathermy in endocervicitis
212. Complete laceration of sphincter ani
213. Infection of Eustachian tube.
214. Auto blood transfusion.
215. Surgery and radiation of breast tumors.
216. Surgical treatment of bronchial fistula.
217. Epithelioma at sclereo-corneal margin
218. Presidential addresses, N. Y. A. M.
219. Tracheitis, laryngo-tracheitis, laryngo-tracheo-bronchitis.
220. Arsenical spray residue.
221. Alimentary intoxication in children
222. Bladder neck structure and changes.
223. Ewing tumor of long bones
224. Amaurosis in encephalitis
225. Renal decapsulation in children.
226. Cancer of the lung.
227. Pigmentation of anterior surface of iris.
228. Infection with streptothrix, etc., simulating neoplasm.
229. Placenta praevia with twins.
230. Acute perforation of gastric and duodenal ulcer.
231. Pyelograms in connection with pathology.
232. Embryonal adenomysarcoma of kidney in adults.

233. Post-operative ileus. (1917-1928).
234. Investigative and Experimental work on teeth. 1918-1928.
235. Salpingitis, operative indications.
236. Duration of pulmonary tuberculosis.
237. Late results in treated and untreated syphilis.
238. Graphic methods of recording blood pressure.
239. Treatment of severe dyspnea in pneumothorax.
240. Immunochemistry of blood.
241. Bibliography of Samuel Wolcott Clausen.
242. Bibliography of Harold Kniest Faber.
243. Bibliography of Alfred Fabian Hess.
244. Bibliography of H. F. Helmholtz.
245. Bibliography of O. M. Schloss.
246. Bibliography of F. F. Tisdall.
247. Urticaria (1924-1928).
248. Sarcoma of ciliary body.
249. Surgical books and journals. 1924-1928.
250. Extreme dilatation of left auricle to right.
251. Bibliography of John R. B. Rodgers.
252. Early references to cleft palate.
253. Library of Surgeon's Office.
254. Extrauterine pregnancy with living children.
255. Alcohol injections in thoracic surgery.
256. Meningitis in new born caused by gram-negative bacillus.
257. Abdominal pain caused by extra-abdominal injuries.
258. Halo in glaucoma.
259. Effect of sunlight, etc., on human body.
260. Early Chinese eye-doctors, spectacles, etc.
261. Carcinoma and sarcoma in same breast.
262. Paranoia, 1927-1928.
263. Torsion of spermatic cord in children.
264. Heredity in skin diseases.
265. Bacteremia.
266. Acne rosacea keratitis.
267. Index medicus and Quarterly Cumulative Index Medicus.
268. History of New York Academy of Medicine.
269. Diphtheria anatoxin.
270. Pulpless teeth and root canal treatment.
271. Theory of emotions.
272. Experimental nephrotomy.
273. Dicephalus causing dystocia.
274. Aneurisms of the heart.
275. Rhinoplasty.
276. Bibliography of Paul R. Cannon.
277. Relation of diseases of upper and lower respiratory tract.
278. Skin tests with antigen in scarlet fever.
- 279.
- 280.
281. Extrasystolic irregularities in young adults.
282. Purification of rural water supply.
283. Normal blood cholesterol figures for young children.
284. Effect of feeding on cholesterol content of blood.
285. Orbital implants after enucleation.
286. Bibliography of C. L. Dana.
287. Glaucoma (chronic, simple).
288. Carcinoma of bladder.
289. Bibliography of W. P. Lucas.
290. Successful cases of Trendelenburgh's operation.
291. Tonsils and adenoids, surgery.
292. Carcinoma of the prostate.
293. Scarlet fever toxin.

294. Tumors (including cysts) of the orbit.
295. Antitoxins for treatment of scarlet fever.
296. Lumbar vertebrae.
297. Treatment of neurosyphilis by spinal drainage.
298. Protective measures for health of tourists in tropics.
299. Incidence of cancer among North American Indians.
300. Bibliography of Thomas Addis Emmet.
301. List of books for a medical library.
302. Erosions of cervix in etiology of arthritis.
303. Tuberculosis and trauma.
304. Bismuth discoloration of skin.
305. Ovarian pregnancy.
306. Post-operative complications of cataract extraction.
307. Sensitization to cocaine and novocaine.
308. Treatment of Paget's disease (Osteitis deformans).
309. Therapeutic value of sodium thiosulphate.
310. Allergic phenomena after argyrol, etc.
311. Ultraviolet radiation and bactericidal power of blood.
312. Effect of endocrines on development of teeth.
313. Midwives. Mortality.
314. Maternal statistics.
315. *Argyrol*.
316. Treatment of chronic endocervicitis.
317. Hyperplasia of ethmoid sinus and polypsis.
318. Effect of platinum on tissues.
319. Lethal drop in temperature.
320. Gall bladder drainage.
321. Medical economics.
322. Allergic phases of scarlet fever.
323. Eye signs in early measles.
324. Carbon bisulphide—effect on eye.
325. Electric cataract.
326. Manic depressive and involutional insanity.
327. Sensitization to mercurochrome.
328. Dermatitis caused by wood.
329. Myasthenia gravis—microscopic pathology.
330. Use of platinum in surgical instruments.
331. Spontaneous recovery from detachment of retina.
332. Pyopneumothorax.
333. *Aschheim Zondek* test.
334. Ultraviolet ray microphotography.
335. Seminal vesicles and ejaculatory ducts.
336. Suggestion and hypnosis.
337. Endarteritis — surgical treatment.
338. Exophthalmos following mucocele of sinuses.
339. Tryparsamide in neurosyphilis.
340. Xerosis of conjunctivitis.
341. Musculature of bladder neck.
342. Ureteral stricture.
343. References to Dr. F. Lange.
344. Bibliography of C. S. Sherrington.
345. Vitality.
346. Lecithin.
347. Cholesterol.
348. Myelin.
349. Bibliography of Dr. Russell Bellamy.
350. Pulsating exophthalmos.
351. Causes of crime in the individual.
352. Spinal anesthesia.
353. Non-pathological heart murmurs in children.
354. Yeast.
355. Iron by hydrogen.
356. Mild hypothyroidism.
357. Gonin operation.

358. Paget's disease of the nipple.
359. Greater tuberosity of humerus.
360. Digitalis in pneumonia.
361. Survival in total section of spinal cord.
362. Lichenoid sarcoid.
363. Sensitization to lanolin.
364. Treatment of prolapsed breast.
365. Pulmonary embolism in puerperal state.
366. Therapeutic abortion with X-rays.
367. Bilateral ovarian cysts, etc.
368. Pathology of ciliary arteries and nerves.
369. Melanoma and melanosarcoma of iris.
370. Phrenicotomy, phrenicectomy and exairesis.
371. Effects of maximal light intensity . . .
372. Radiotherapy of diseases of vascular system.
373. Agave.
374. Medicine in Bible and Talmud.
375. Double uterus.
376. Pathological fractures in Paget's disease of bone.
377. Female pelvis as focus of infection in arthritis.
378. Diagnosis of empyema in children.
379. Bibliography of J. M. West.
380. Auditory vertigo.
381. Menière's syndrome.
382. Lobectomy.
383. Bronchiectasis.
384. Phrenic nerve in connection with hiccup.
385. Elephantiasis of scrotum and penis.
386. Cystomasarcoma phyllodes of mammary gland.
387. Individual biographies in N. Y. A. M. library.
388. Haff disease (Haffkrankheit).
389. Bibliography of Henri Claude.
390. Bronzed diabetes.
391. Lymphosarcoma of mediastinum.
392. Cysts of uterus.
393. Surgical enlargement of mouth.
394. Lymphatic system in urinary infections.
395. Rhinopharyngitis mutilans.
396. Mucocele of appendix.
397. Oral sepsis and postoperative pneumonia.
398. Rigor mortis of fetus . . .
399. Colles fracture.
400. County and state medical societies in 1816.
401. Sweetened condensed milk.
402. Psychoanalytical treatment of narcissism.
403. Fibromyoma in relation to body and cervix of uterus.
404. Postoperative massive collapse of lung.
405. Megacolon of sigmoid associated with volvulus.
406. Bibliography of James Ewing.
407. Cerebral meningitis, Friedländer's bacillus.
408. Treatment of toxic goiter with very small doses of iodine.
409. Phenylhydrazine in erythremia.
410. Polycythemia.
411. Rupture of fetal membranes in pregnancy.
412. Phosphaturia.
413. Bowman's membrane.
414. Benign bone tumors.
415. Exophthalmos in scurvy.
416. Optic nerve—pigmentation, etc.
417. Anatomy and physiology of duodenum.
418. Tumors (mammary and testicular) in dogs.
419. Annular pancreas, 1922-1930.
420. Duodenal toxemia.
421. Obstruction of duodenum.
422. Bibliography of Henry M. Silver.

- 423 Arthrodesis for flail knee in poliomyelitis
424. Spontaneous regression in ovarian tumors.
425. Congenital absence of choroid.
426. Voluntary nystagmus
427. Abnormalities in shape of duodenum
428. Local manifestations of arteriosclerosis.
429. Foreign bodies in duodenum
430. Copper in treatment of anemia.
431. Bibliography of John William Draper
- 432 Idiopathic dilatation of esophagus
- 433 Gallstones in duodenum.
434. Migraine and headache
435. Bismuth salicylate in syphilis.
436. Bibliography of J. D. Eby.
437. Bibliography of W. C. Fisher.
438. Bibliography of I. W. Hance
439. Closed ethmoiditis.
440. Psychasthenia.
441. Heart block in young people.
442. Auricular fibrillation, paroxysmal.
443. Folliculoma malignum ovarii.
444. Boilermakers' deafness.
445. Acquired syphilis in children.
446. Traumatic interstitial keratitis.
447. Visual hallucinations.
448. Importance of dental care.
449. Convolutions and fissures of brain.
450. Convolutions in brains of criminals.
451. Vaccine treatment of colds.
452. Pus in prostatic fluid.
453. Hypertrophic gingivitis.
454. Extraction of testicular hormone.
455. Whiteness of teeth.
456. Intervertebral disk
457. Uremia.
- 458 Fat metabolism in liver.
- 459 Sodium perborate in Vincent's Angina
- 460 Nonoperative treatment of dislocation-tracture of humerus
- 461 Hairy tongue
- 462 Treatment of coronary disease
- 463 Thyroid tumors of ovary
- 464 Avertin
- 465 Bibliography of Robert Clyde Lanch
- 466 Bibliography of E. A. Park
- 467 Bibliography of E. C. Dunham
- 468 Bibliography of H. K. Thomas.
- 469 Bibliography of Y. Henderson.
- 470 Cultivation of human tumors in vitro
- 471 Erysipelas in infants and children
- 472 Typhoid in infants and children.
- 473 Tetanus in infants and children.
- 474 Bibliography of W. G. Lewi.
- 475 Optic atrophy following loss of blood.
- 476 Traumatic appendicitis.
477. Bibliography of Otto Meyerhof.
478. Bibliography of Otto Warburg.
479. Lingual thyroid.
480. Toxic effects of Koremlu cream.
481. Traumatic rupture of duodenum.
482. Pregnancy in uterus bicornus.
483. Relation of climate to rheumatic fever.
484. Tumors of the testicle.
485. Congenital aniridia.
486. Traumatic gastric and duodenal ulcer.
487. Aschheim-Zondek test for pregnancy.
488. Bactericidal power of silver.
489. Poisoning from oral administration of cocaine.
490. Colon and epilepsy.
491. Posterior lenticonus
- 492 Sympathetic ophthalmia-experimental work.
- 493 Books on History of Medicine in the N. Y. Academy of Medicine.

494. Medical libraries in Great Britain and possessions.
495. Blood sedimentation test in dermatology.
496. Aortic stenosis.
497. Therapy of middle ear disease.
498. Melanosis of scalp.
499. Surgical and traumatic shock.
500. Spontaneous subchoroidal hemorrhage.
501. Filterable forms of Koch's bacillus.
502. Treatment of pain in herpes zoster.
503. Hemangioma of colon and rectum.
504. Brain of porpoise and dolphin.
505. Brain of albino rat.
506. Increase of insanity.
507. Soy bean in medicine.
508. Hyperthyroidism and medicine.
509. Hemivertebra.
510. Fracture of odontoid process.
511. Endarteritis obliterans, 1867-1910.
512. Sequelae of cholecystectomy.
513. Congenital vascular malformation of retina.
514. Benign tumor of bladder.
515. Pseudoneuritis optica.
516. Amytal.
517. Vesicovaginal fistula.
518. Fatal lead poisoning, with autopsy reports.
519. Protein therapy of puerperal fever.
520. Maggots in osteomyelitis (brought up to date, Feb., 1933)
521. Bibliography of A. H. Bill
522. Bibliography of N. W. Vaux.
523. Bibliography of Paul Titus.
524. Blood pressure in relation to surgery.
525. Artificial eardrums of fabric.
526. Naevus flammeus and glaucoma.
527. Eruptions caused by phenolphthalein.
528. Congenital deformities of the nose.
529. Radium and X-ray treatment of female genitals.
530. Radium in menstrual disorders.
531. Nerve supply of meninges of brain.
532. Urea as a diuretic.
533. Double gall bladder.
534. Obesity.
535. Bibliography of E. A. Schumann.
536. Bibliography of W. H. Weir.
537. Bibliography of J. H. Stauder.
538. Bibliography of P. W. Toombs.
539. Bibliography of R. D. Mussey
540. Bibliography of J. B. DeLee
541. Bibliography of C. J. Miller
542. Bibliography of F. C. Irving
543. Bibliography of J. R. McCord.
544. Cyclodialysis combined with iridectomy.
545. Bibliography of D. E. Hoag.
546. Blind spot.
547. Pemphigus in pregnancy.
548. Penetrating gunshot wounds of chest.
549. Bacillus Calmette-Guérin.
550. Avian tuberculosis in human beings.
551. Surgery and nerve blocking in carcinoma of lung.
552. Intussusception in adults . . . and intestinal tuberculosis.
553. Renal decapsulation in mercuric chloride poisoning.
554. Acetarsones in pemphigus.
555. Tracheal pressure in heart and lung pathology.
556. Agranulocytic angina.
557. Electrocardiograms in angina...
558. Keratoplasty.
559. Action of alcohol injections on nerves.
560. Bibliography of Willy Meyer.
561. Bibliography of Robert T. Morris.

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| 562. Osteochondritis dissecans. | 579. Tuberculosis of lacrymal gland |
| 563. Injury and psychosis. | 580. Effects of tobacco. |
| 564. Traumatic rupture of the kidney. | 581. Local anesthesia in ophthalmology |
| 565. Diet and endocrine disturbances in connection with teeth. | 582. Bibliography of Howard Lichtenhal |
| 566. Solitary cysts of the kidney. | 583. Effect of pituitary extract on thyroid of dogs |
| 567. Iritis . . . following trephining for glaucoma. | 584. Uterus didelphys with double vagina. |
| 568. Facial paralysis. | 585. Tourniquets. |
| 569. Fracture of cricoid cartilage. | 586. Calculus in double kidney. |
| 570. Benign anal tumors. | 587. Parotitis following delivery or surgical operations. |
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| 573. Nodular opacity of cornea. | 590. Bibliography of George David Stewart. |
| 574. Pineal gland and psychoneuroses. | 591. Lipiodol injection of biliary passages. |
| 575. Subconjunctival use of adrenalin. | 592. Ocular torticollis. |
| 576. Treatment of pneumonia by lytic substances. | 593. Physiopathology of eye. |
| 577. Bibliography of John Osborn Polak. | 594. Potassium chloride (Physiological and therapeutic). |
| 578. Fecal fistula following appendectomy. | |

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Aimes, A. *Météoropathologie.*

Paris, Maloine, 1932, 219 p.

American public health association. Committee on administrative practice. Sub-committee on rural health work. A study of rural public health service.

N. Y., Commonwealth Fund, 1933, 236 p.

Appleton, J. L. T., Jr. *Bacterial infection, with special reference to dental practice.* 2. ed.

Phil., Lea, 1933, 654 p.

Aschner, B. *Heilerfolge der Konstitutionstherapie bei weiblichen Geisteskranken.*

Stuttgart, Hippokrates-Verlag, 1933, 364 p.

Ascoli, M. & Lucacer, M. *Le pneumothorax bilatéral simultané.*

Paris, Masson, 1932, 102 p.

Broster, L. R. & Vines, H. W. C. *The adrenal cortex.*

London, Lewis, 1933, 94 p.

- Chapin, H. D. & Royster, L. T. *Pediatrics*. 7. ed.
Balt., Wood, 1933, 775 p.
- Copeman, W. S. C. *The treatment of rheumatism in general practice*.
London, Arnold, 1933, 215 p.
- Corkill, N. L. *Snakes and snake bite in Iraq*.
London, Baillière, 1932, 51 p.
- Deelman, H. T. *Die Histopathologie der Uterusmucosa*.
Leipzig, Thieme, 1933, 247 p.
- D'Irsay, S. *Histoire des universités, françaises et étrangères*.
Paris, Picard, 1933, vol. 1.
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London, Milford, 1933, 2 v.
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Buenos Aires, El Ateneo, 1933, 1001 p.
- Fish, E. W. *An experimental investigation of enamel, dentine and the dental pulp*.
London, Bales, 1933, 118 numb. 1.
- Frey, S. *Die Embolie*.
Leipzig, Thieme, 1933, 178 p.
- Knopf, S. A. *Report to the United States government on tuberculosis*.
N. Y., National Tuberculosis Assoc. [1933], 59 p.
- Koch, T. *Chemische und mikroskopische Untersuchungen vom kranken Menschen*. 2. Aufl.
Stuttgart, Wissenschaftliche Verlagsgesellschaft, 1933, 193 p.
- Lauda, E. *Die normale und pathologische Physiologie der Milz*.
Berlin, Urban, 1933, 280 p.
- LeComte, R. M. *Manual of urology*.
Balt., Wood, 1933, 317 p.
- Lewellys (The) F. Barker *festschrift*,
Phil., Lippincott, 1932, 534 p.
- Magnuson, P. B. *Fractures*.
Phil., Lippincott [1933], 466 p.
- Norris, G. W. & Landis, H. R. M. *Diseases of the chest and the principles of physical diagnosis*. 5. ed.
Phil., Saunders, 1933, 997 p.
- Parodi, F. *La mécanique pulmonaire*.
Paris, Masson, 1933, 223 p.
- Pusey, W. A. *The history and epidemiology of syphilis*.
Springfield, Ill., Thomas, 1933, 113 p.
- Ramond, F., and Dimitresco-Popovici, J. *L'aerophagie et son traitement*.
Paris, Masson, 1933, 131 p.
- Science (The) of radiology* [edited by Otto Glasser].
[Springfield, Ill., Thomas, 1933], 450 p.
- Wolf, H. F. *Textbook of physical therapy*.
N. Y., Appleton-Century, [1933], 409 p.

REPORT ON THE SIXTH ANNUAL GRADUATE FORTNIGHT

The Committee on Medical Education at its January meeting decided upon Metabolic Diseases as the subject for this year's Graduate Fortnight. At the same meeting a Subcommittee was appointed to make plans and arrangements. The Subcommittee held frequent meetings until April. It was decided to include in this year's program the same features that were presented in the last four years. That is, evening meetings at the Academy, co-ordinated clinics in a group of hospitals and an extensive exhibit. Fifteen hospitals were invited to cooperate in presenting programs and representatives of these hospitals met twice with the Subcommittee.

In June about 20,000 copies of the preliminary announcement of the Fortnight were mailed to registered physicians residing within a radius of 100 miles of New York City and to a miscellaneous list outside this area. 2,127 applications were received for the complete program which was ready for distribution the middle of July. Altogether 6,000 copies of the complete program were distributed.

Other Publicity

A news release was sent to 127 medical journals, 60 county medical societies outside of New York State, certain national societies, the chairmen of the A. M. A. sections and the deans of all medical schools. Reading notices of the Fortnight appeared in the Bulletin of the Academy, the Health Examiner, Medical Week, New York State Medical Journal, New York City Health Bulletin, New York State Health Bulletin, the Diplomat, and in quite a number of medical journals published in other parts of the country. A paid advertisement was inserted in one number of the Journal of the A. M. A.

Registration and Ticket Distribution

A total of 643 physicians registered for the Fortnight. For the first time, a charge was made for attendance. A general

admission card admitting to all features of the Fortnight was issued upon payment of the registration fee of \$2.00. Tickets were issued without charge to Fellows of the Academy and to speakers, clinicians and exhibitors who contributed to the program. A total of 2,500 complimentary tickets were issued to medical officers of the government services, interns and residents in approved hospitals, 4th year medical students in Greater New York and to a few dietitians and nurses.

Attendance

The attendance at evening meetings, not including the meeting of October 30th, averaged about 650. The smallest attendance was 448. 1,794 persons tried to hear the papers presented on the evening of October 30th. Loud speakers had been installed in two section rooms to accommodate those who could not be admitted to Hosack Hall, so that about 1,200 were able to hear the speakers.

Arrangements have been made to publish the papers presented at the evening meetings in the Bulletin of the Academy, beginning with the November number. Publication will probably be concluded by June.

Attendance at Clinics

All clinics were very well attended, the smallest at any one clinic being 93. The average attendance at all clinics was over 150.

The Exhibit

The scientific exhibit was about one-fourth again as large as any held heretofore, filling four large exhibition rooms in the new building, the Collation Room and the Main Hall. Approximately 95 topics were exhibited by 160 exhibitors, 30 hospitals and four commercial organizations. Of these, nine exhibits were on diabetes; three on other carbohydrate disturbances; eleven on endocrines; eleven on heart, arteries and kidneys; four on blood; two on gallstones, vesical and renal calculi; seven on bones and joints;

six on teeth; eight on vitamins and their deficiencies; eight on dermatologic and allergic disorders; six on other metabolic disorders and fifteen miscellaneous exhibits, including commercial. There were also nine exhibits on laboratory tests and apparatus. An exhibit of books by Thudichum with original preparations and specimens on the study of brain chemistry was displayed, besides an extensive exhibit arranged in connection with the Celebration of the 100th Anniversary of the Publication of William Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion."

At 7:30 each evening during the Fortnight, scheduled demonstrations were arranged which included demonstrations on fresh pathology with the use of the epidiascope, a thyroid and an endocrine clinic, special dietetics with display of foods, and motion pictures. Special demonstrations at exhibit booths were arranged at fifteen minute intervals, from 7:00 to 8:30 by approximately sixteen exhibitors.

It is estimated that over 1,000 persons visited the exhibits daily during the morning, afternoon and evening. There being only two speakers for most of the evenings, the meetings adjourned early, thus giving an opportunity for many to visit the exhibits. At these periods 300 to 500 persons attended special demonstrations.



PROCEEDINGS OF ACADEMY MEETINGS

OCTOBER

STATED MEETINGS

Thursday Evening, October 5, at 8:30 o'clock

Program arranged in cooperation with the

BEAUMONT CENTENNIAL CELEBRATION COMMITTEE

ORDER

I. EXECUTIVE SESSION

- a. Reading of the Minutes
- b. Election of Fellows
- c. Election of Trustee
- d. Report of Nominating Committee to fill vacancy in Committee on Fellowship caused by the death of Dr. Richard T. Atkins

II. PAPERS OF THE EVENING

Celebration in commemoration of the one hundredth anniversary of the publication of William Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion"

- a. Introductory Remarks
Bernard Sachs, President of the Academy
- b. William Beaumont as an Army Officer
Robert U. Patterson, Surgeon-General of the Army
- c. A Reading from the Beaumont-St. Martin Contract
Harris A. Houghton, Chairman Beaumont Celebration Committee
- d. The Book of William Beaumont after a Hundred Years
Walter B. Cannon, George Higginson Professor of Physiology, Harvard Medical School

An exhibition of books and other memorabilia relating to the life, work and travels of Beaumont, was held in the Collation Room, and continued through the Graduate Fortnight.

Thursday Evening, October 19, at 8:30 o'clock

The First Harvey Lecture, "Typhus and Rocky Mountain Spotted Fever in the United States," R. E. Dyer, Surgeon, National Institute of Health, Washington.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, October 3, at 8:30 o'clock

ORDER

- I. PRESENTATION OF CASES FROM VANDERBILT CLINIC
- II. PRESENTATION OF MISCELLANEOUS CASES
- III. DISCUSSION OF SELECTED CASES
- IV. EXECUTIVE SESSION

SECTION OF SURGERY

Friday Evening, October 6, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 - a. Sequestration of the lung, Fred W. Solley
 - b. Gastro-mesenteric ileus, John E. Sutton, Jr.
 - c. Carcinoma of the rectum, Jerome M. Lynch
- III. PAPER OF THE EVENING
Principles involved in the treatment of carcinoma affecting the organs located in the male and female pelvis, R. C. Coffey, Portland, Oregon (by invitation)
- IV. GENERAL DISCUSSION
Allen O. Whipple, Carl Eggers, Edwin Beer, Jerome M. Lynch, William P. Healy
- V. EXECUTIVE SESSION

JOINT MEETING

SECTION OF NEUROLOGY AND PSYCHIATRY

AND

NEW YORK SOCIETY FOR CLINICAL PSYCHIATRY

Tuesday Evening, October 10, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 - a. Physical complaints disguising adolescent phantasies of pregnancy, Norvelle C. LaMar
 - b. A catatonic syndrome associated with diabetes mellitus, Siegfried Katz, Meyer M. Harris
 - c. Typical cases to be presented from Bellevue Psychiatric Hospital, Laurretta Bender
- III. DISCUSSION
H. M. Tiebout, C. O. Cheney, Menas Gregory, J. R. Hunt
- IV. GENERAL DISCUSSION

SECTION OF OPHTHALMOLOGY

Monday Evening, October 16, at 7 o'clock

- I. INSTRUCTION HOUR—7 to 8 o'clock
Special histo-pathology of the eye, Bernard Samuels, Mr. Edgar Burchell, M.Sc. (by invitation)
- II. DEMONSTRATION HOUR—7:30 to 8:30 o'clock
 - a. Slit lamp studies, Milton L. Berliner, Isador Goldstein, Wendell L. Hughes, Girolamo Bonaccolto (by invitation)
 - b. Ferec-Rand perimeter, stereo-campimeter, Bausch & Lomb Co. (by invitation)
 - c. Stereo-campimeter, American Optical Co. (by invitation)
 - d. Tangent screen, Aaron H. Thomasson

III. SECTION MEETING—8:30 to 10:30 o'clock

- a. Reading of the Minutes
- b. Scientific report
 - I. A case of retinal detachment treated by endothermy, Arnold Knapp, 5 minutes
- c. Scientific papers of the evening—Visual field studies as an aid in localizing and identifying lesions of the central nervous system, Thomas H. Johnson, 25 minutes
- d. Clinical manifestations and anatomical changes occurring in neurological cases associated with visual field changes, Joseph H. Globus, 25 minutes
- e. Discussion, Foster Kennedy, 15 minutes, John N. Evans, 15 minutes

SECTION OF MEDICINE

Tuesday Evening, October 17, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 - a. The futurity handicap of the tuberculosis contact (the consideration of data relative to the pre-assessment and prevention of clinical disease), A. H. W. Caulfield, University of Toronto (by invitation)
 - b. The incidence of bacteriemia and its relation to fatality in 2058 cases of pneumococcus pneumonia in adults—types I-XXXII, J. G. M. Bullowa, Clare Wilcox (by invitation)
- III. GENERAL DISCUSSION

Eugene L. Opie, M. B. Rosenbluth, R. L. Cecil, Alphonse R. Dochez

SECTION OF GENITO-URINARY SURGERY

Wednesday Evening, October 18, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 - a. Some interesting departures from the beaten path in kidney surgery. Experimental studies with viable muscle grafts, Nelse F. Ockerblad, Kansas City (by invitation)
Discussion to be opened by Edwin Beer
 - b. Ureteral transplantation. Robert C. Coffey, Portland, Oregon (by invitation)
- III. GENERAL DISCUSSION
- IV. EXECUTIVE SESSION

SECTION OF OTOLARYNGOLOGY

Wednesday Evening, October 18, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 - a. An obscure case of sinus thrombosis with unusual complications, Manfred J. Gerstley (by invitation)

- b. *Left quiescent acute mastoiditis with lateral sinus thrombosis; hemolytic streptococcus infection; operation; recovery, G. Ward McAuliffe*
- c. *Parapharyngitis following infection of the lower jaw after tooth extraction, Saul Knopf*
- d. *Cases of jugular thrombo-phlebitis following infections of the face and throat, James W. Babcock*

III. PAPERS OF THE EVENING

SYMPOSIUM, OTOLARYNGOLOGICAL PROBLEMS IN SEPSIS

- a. *Parapharyngeal infections and internal jugular thrombosis; diagnosis and treatment, August L. Beck*
- b. *Newer conceptions in the management of septic sinus thrombosis, O. Jason Dixon, Kansas City (by invitation)*
- c. *Discussion of the basis for the selection of the type of procedure in sinus thrombosis, Ralph Almour*
- d. *Summation of treatment of sepsis from the medical standpoint, Marcus A. Rothschild*

IV. DISCUSSION

Lee M. Hurd, John M. Loré, Charles J. Imperatori, Marvin F. Jones

V. EXECUTIVE SESSION

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, October 20, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES

II. PRESENTATION OF CASES

- a. 1. *Congenital absence of the long extensor tendon of the thumbs. Tendon transplantation*
- 2. *Bilateral popliteal cyst*
- 3. *Extra-articular fusion of hip joint, Isadore Zadek*
- b. 1. *Fracture of os calcis—operative end result*
- 2. *Giant cell tumor of lower end of radius—operation, Mather Cleveland*
- c. *Paralytic calcaneus treated by tendon transplantation and bone plastic, Leo Mayer*
- d. *Enchondroma of lower extremity of tibia—operation, David M. Bosworth*

III. PAPER OF THE EVENING

Some observations in European clinics, Clay Ray Murray

IV. GENERAL DISCUSSION

The Orthopedic Club of Philadelphia were the guests of the Section at the November meeting.

SECTION OF PEDIATRICS

Saturday, October 21, at 10:00 a. m.

NEW YORK HOSPITAL

1304 York Avenue, Amphitheatre B-07

Morning Session

- 10:00 a.m. 1. Heat loss by vaporization and radiation, presented by Eugene F. Du Bois, New York Hospital; James D. Hardy, Ph.D., Russell Sage Institute of Pathology
2. A consideration of the new preparation of diphtheria toxoid, presented by William H. Park, Department of Health, New York City, Bureau of Laboratories
3. A clinical investigation of the development of caries in the deciduous and permanent teeth, presented by Alfred F. Hess, New York City
4. Some clinical aspects of chronic hemorrhagic pachymeningitis, presented by Rustin McIntosh, Babies' Hospital
5. *Epidemiology reviewed in the light of experiment*, presented by L. T. Webster, Rockefeller Institute for Medical Research

LUNCHEON

Afternoon Session

at The New York Academy of Medicine

- 2:15 p.m. 1. Prophylaxis of rickets with viosterol in the premature infant. A study of the clinical, chemical and roentgenological findings, presented by Leonard T. Davidson, Katharine K. Merritt, Babies' Hospital
2. Creatin metabolism in muscular disease, presented by A. T. Millhorat, Cornell Medical College, Department of Pharmacology
3. The effect of training during infancy on behavior development. A study of twins, presented by Myrtle McGraw, Babies' Hospital
4. Water requirements in infants, presented by Samuel Z. Levine, New York Hospital
5. Basal metabolism in children with splenomegaly, presented by Anne Topper, Mt. Sinai Hospital

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday Evening, October 24, at 8:30 o'clock

ORDER

Program arranged in conjunction with the

SIXTH ANNUAL GRADUATE FORTNIGHT

PAPERS OF THE EVENING

- I. Metabolism in hyperthyroidism and hypothyroidism, Walter W. Palmer
- II. The surgical treatment of hyperthyroidism, Frank H. Lahey, Boston (by invitation)

AFFILIATED SOCIETIES
NEW YORK ROENTGEN SOCIETY
in affiliation with
THE NEW YORK ACADEMY OF MEDICINE
Monday Evening, October 16, at 8:30 o'clock

- I. 8:30 to 9:00 p. m.
Demonstration and discussion of interesting cases
- II. 9:00 p. m.
The application of Roentgen-rays in non-medical fields, George L. Clark,
Professor of Chemistry, University of Illinois (by invitation)
- III. GENERAL DISCUSSION
To be opened by C. B. Braestrup, Ph.D. (by invitation)
- IV. EXECUTIVE SESSION

NEW YORK MEETING OF THE
SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE
under the auspices of
THE NEW YORK ACADEMY OF MEDICINE

Wednesday Evening, October 18, at 8:15 o'clock

- I. *B. tuberculosis* in psychotic patients (Lowenstein's method), N. Kopeloff, E. Lowenstein
- II. Effect of adrenalectomy on salt metabolism in rats, M. I. Rubin, E. T. Krick (introduced by S. Goldschmidt)
- III. Somatic myogenic action in embryos of *fundulus heteroclitus*, G. E. Coghill
- IV. Serum phosphatase of non-osseous origin. Significance of the variations of serum phosphatase in jaundice, A. Bodansky, H. L. Jaffe
- V. Effect of parathormone on bone phosphatase activity *in vitro*, H. Bakwin, O. Bodansky
- VI. Mass ligation of the pancreas near the head in diabetes mellitus, H. Koster, W. S. Collens, B. S. Geshwin
- VII. Skin changes after subcutaneous injection of Epinephrine, M. C. Hrubetz (introduced by H. B. Williams)
- VIII. Transudation through living membranes, R. Ratnoff (introduced by E. Ponder)
- IX. Fixation of certain viruses on cells of susceptible animals, and the protection afforded by such cells, Peyton Rous, P. D. McMaster, S. S. Hudack

OFFICERS OF SECTIONS AND AFFILIATED SOCIETIES, 1933-34

Dermatology and Syphilology, 1st Tuesday

<i>Chairman</i>	<i>Secretary</i>
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Surgery, 1st Friday

RALPH COLP 111 East 83 Street	GUILFORD S. DUDLEY 27 East 63 Street
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Neurology and Psychiatry, 2nd Tuesday

CLARENCE P. OBERNDORF 112 West 59 Street	C. BURNS CRAIG Fort Washington Ave. and W. 168 St.
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Historical and Cultural Medicine,

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Pediatrics, 2nd Thursday

MARTHA WOLLSTEIN 340 West 87 Street	HARRY BAKWIN 132 East 71 Street
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Ophthalmology, 3rd Monday

WEBB W. WEEKS 20 East 53 Street	W. GUERNSEY FREY, JR. 121 East 60 Street
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Medicine, 3rd Tuesday

HENRY J. SPENCER 24 West 10 Street	RANDOLPH WEST 622 West 168 Street
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Genito-Urinary Surgery, 3rd Wednesday

C. TRAVERS STEPITA 340 East 72 Street	AUGUSTUS HARRIS 306 Park Place, Brooklyn
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Otolaryngology, 3rd Wednesday

SAMUEL J. KOPETZKY 51 West 73 Street	WM. WALLACE MORRISON 39 East 50 Street
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Orthopedic Surgery, 3rd Friday

PAUL C. COLONNA 59 East 54 Street	LEO MAYER 140 West 79 Street
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Obstetrics and Gynecology, 4th Tuesday

FREDERICK C. FREED 59 East 54 Street	Harvey B. Matthews 643 St. Marks Ave., Brooklyn
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AFFILIATED SOCIETIES

Society for Experimental Biology and Medicine, 3rd Wednesday

<i>President</i>	<i>Secretary</i>
A. R. DOCHEZ 136 East 67 Street	A. J. GOLDFORN City College, Convent Avenue and 139 Street

Harvey Society, 3rd Thursday

ALFRED F. HESS 16 West 86 Street	EDGAR STILLMAN 22 East 69 Street
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New York Pathological Society, 4th Thursday

PAUL KLEMPERER 378 Central Park West	MAURICE N. RICHTER 630 West 168 Street
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New York Roentgen Society, 3rd Monday

A. L. LOOMIS BELL L. I. College Hospital, Brooklyn	C. WATSWORTH SCHWARTZ 33 East 68 Street
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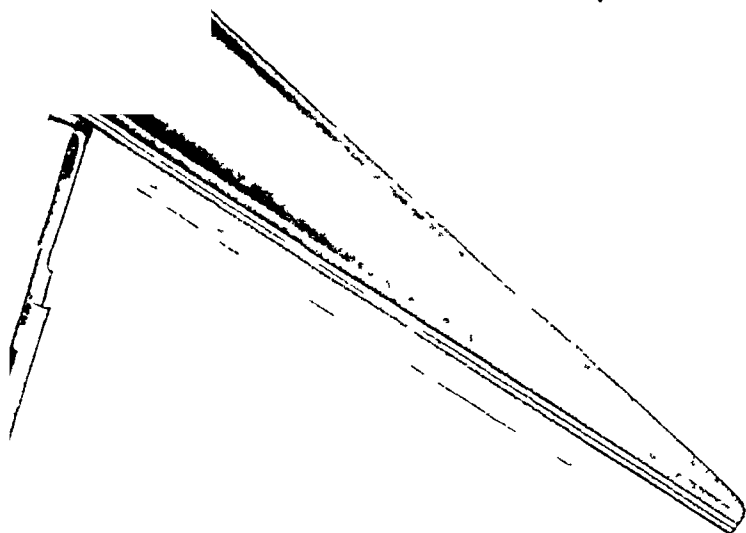
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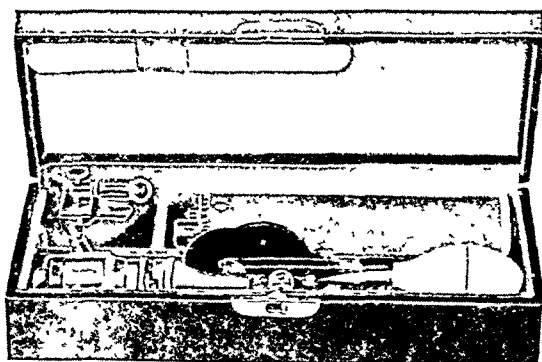
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BULLETIN
OF
THE NEW YORK
ACADEMY OF MEDICINE



INCORPORATED 1851

OCTOBER, 1933



PUBLISHED MONTHLY BY

THE NEW YORK ACADEMY OF MEDICINE

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VOL. IX, No. 10

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CONTENTS

THE WILLIAM BEAUMONT CELEBRATION :

Introductory Remarks, Bernard Sachs.....	551
William Beaumont as an Army Officer, Robert U. Patterson, Surgeon General of the Army.....	555
The Beaumont-St. Martin Contract and the Descendants of Dr. Beaumont, Harris A. Houghton.....	564
The Book of William Beaumont after One Hundred Years, Walter B. Cannon.....	568
George David Stewart, A Tribute, Robert James Carlisle.....	585
Committee on Fellowship.....	597
Recent Accessions to the Library.....	598
Deaths of Fellows of the Academy.....	600



WILLIAM BEAUMONT
1785-1853

From a hitherto unpublished daguerreotype, in possession of The New York Academy of Medicine, presented by Dr Irving Pardee. This photograph was in the possession of descendants of William Beaumont's brother, Abel Beaumont, of New London.

BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

VOL. IX

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No. 10

STATED MEETING, OCTOBER 5, 1933

Celebration of the 100th Anniversary of the Publication of
William Beaumont's "Experiments and Observations on
the Gastric Juice and the Physiology of Digestion."

INTRODUCTORY REMARKS

BERNARD SACHS

(President, The New York Academy of Medicine)

The Fellows of The New York Academy of Medicine, although wholly devoted to the doctrine that medicine should transcend national boundaries, feel an intense pride in the great achievements of the American army surgeon, William Beaumont, and are happy to join in the celebration of the Centennial of the publication of that famous book entitled "Experiments and Observations on the Gastric Juices and Physiology of Digestion" published at Plattsburgh in 1833. Preparations for this celebration were entrusted to a special committee, of which Dr. Harris A. Houghton is the efficient chairman.

A study of Dr. Malloch's list of early and later Medical Americana will help us to recall on an occasion like this, the names of a few distinguished countrymen, whose work has been of fundamental importance in the progress of medical science: Ephraim McDowell, whose name will always be associated with the earliest ovarian operations;

William Thomas Green Morton and his discovery of ether anesthesia; John Stough Bobbs, also an army surgeon, who was responsible for the first removal of gallstones by operation; George Huntington and his famous description of the hereditary form of chorea; Reginald Fitz and Charles McBurney; S. Weir Mitchell, Joseph O'Dwyer, and many others of equal fame, not to forget such important contributions as were made in the early days by Oliver Wendell Holmes in his great essay on "The Contagiousness of Puerperal Fever"; Benjamin Franklin, Noah Webster, and other great Americans.

Among those who have left their imprint on the sands of time, the life history of William Beaumont is peculiarly fascinating, and in the short account that I am supposed to give of him, I wish to emphasize his character as a man, while the later speakers will do ample justice to the scientific attainments of the man whom Osler called the "Pioneer Physiologist of this Country".

He was born in the simplest sort of home at Lebanon, Connecticut, November 21st, 1785. Of his childhood little seems to be known, but in his 22nd year, he left the paternal roof to seek fortune and a name. His outfit consisted of a horse and cutter, a barrel of cider and \$100 of hard-earned money.

We are told that from 1807 to 1810 he conducted a village school at Champlain, New York, studying during his leisure hours medical books from the library of Dr. Seth Pomeroy, his first patron.

In 1810 he went to St. Albans, Vermont, where he entered the office of Dr. Benjamin Chandler, and commenced a regular course of medical reading, following it for two years. At the end of this time, having fulfilled the prescribed apprenticeship, he was licensed on "the 2nd Tuesday of June, 1812" to practice medicine, by The Third Medical Society of the State of Vermont.

At the beginning of the War of 1812, he applied for an appointment in the United States Army, and was success-

ful. He was made Assistant Surgeon to the 6th Infantry and joined his regiment at Plattsburgh on September 3rd, 1812. At the conclusion of the war in 1815, when the Army was reduced in numbers, he was retained in service, but soon resigned.

From 1816 to 1820, he appears to have engaged in rather successful private practice in Plattsburgh. In 1820 he rejoined the service and was ordered to Fort Mackinac as post surgeon. It was there that he met his fate and his great opportunity in the person of a French-Canadian, Alexis St. Martin, who was wounded in the abdomen by the accidental discharge of a shotgun.

Imagine the unsettled conditions of that pioneer community and the sudden summons to duty of a young army surgeon. The unfortunate victim was not expected to survive the injury and so far as there was any luck in this matter, the fact that St. Martin survived may be attributed altogether to good fortune, but Beaumont realized at once the unusual opportunity presented to him, and in the most admirable and systematic way continued careful observations on the exact functions of the stomach.

It is of interest to us to read that before that day there was much uncertainty as to what the stomach actually did with the food once it had hold of it.

Beaumont's observations were not of the flippant order and for years he continued carefully the study of the gastric juices, and of the acid content of the stomach, that even to this day the text books on physiology have not been able to do better than to quote his original statements. Beaumont was possessed of the true scientific spirit, carefully postulating his problems, and repeating his observations again and again; in addition to the man of science, there was in him the man of sturdy character, who kept his patient constantly in mind, even to the extent of housing him and making an iron-clad contract with him so as to be certain to keep him within reach and observation. It is a

further testimonial to the man's scientific methods that although he began his observations in 1822, his first publication is dated 1833.

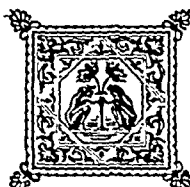
Beaumont did not have an easy time in keeping his eye on Alexis St. Martin. He had a way of disappearing from time to time, and was not altogether sober. He was a great asset, but also a great responsibility to the army surgeon.

During the period of his observations Beaumont was transferred from one post to another and always took St. Martin along with him. Finally in 1834 he was ordered to St. Louis where he remained in service until 1839.

When he resigned, he evidently devoted himself to private practice from that time on. It was unfortunate that Beaumont's brilliant career was terminated by an accident, that he died on April 25, 1853. His celebrated patient outlived him by many years and died in 1880.

Some of you may remember that when Alexis St. Martin died, William Osler made all sorts of efforts to obtain the famous stomach of the famous man, but I believe was not successful in this.

American Medicine and above all, our army surgeons, have reason to be proud of the fundamental researches and experiments so brilliantly and accurately described by William Beaumont. The adequate appreciation of this work I must leave to those who have been asked by the Committee to evaluate in the light of our present day knowledge, the great work that was done by this young army surgeon.



WILLIAM BEAUMONT AS AN ARMY OFFICER*

ROBERT U. PATTERSON
Surgeon General of the Army

I appreciate the courtesy you have extended to me this evening by giving me an opportunity to assist in doing honor to the memory of this great military surgeon and scientist by recounting the history of his career as a Medical Officer of the Army, and to be accorded the privilege of listening to the remarks upon his scientific achievements which will be made by others this evening. Without further delay I will then proceed to speak upon "William Beaumont as an Army Officer".

William Beaumont came of a family which had rendered military service in many a campaign. His father, Samuel Beaumont, had been a corporal in the Connecticut Militia in the American Revolution, and his uncles had also served.

Born just two years after American independence had been achieved, he grew up amid stories of the war, and his mind was filled with a desire to wear the uniform. After his apprenticeship in medicine to Dr. Benjamin Chandler, he was licensed to practice in Vermont in 1812, just as the clouds of the second war with Great Britain began to gather. He immediately seized the opportunity to put his medical training into practice and at the same time display his patriotism. From his home in Champlain, New York, he crossed the lake of that name to Plattsburgh, where a portion of the Army of the North under General Dearborne was encamped, and presented his credentials, consisting of his license to practice medicine and certificates attesting his skill and his "strict moral honesty and integrity". On September 13, 1812, he was received into the Army as a Surgeon's Mate, a rank that corresponded to Assistant Surgeon or what would today be a First Lieutenant. He was assigned to the "Sixth Regiment of Infantry on brevet

* *Delivered at a Stated Meeting of the Academy, October 5, 1933, in honor of William Beaumont.*

from General Bloomfield". He was commissioned officially by President Madison on December 2, 1812, and on the twelfth of that month transferred to the Sixteenth Infantry. During this period of the war, there was very little activity on the part of this force, so that on January 1, 1813, he suspended duty for a time and began the private practice of medicine in Plattsburgh. This was a not unusual procedure, and illustrates the casual manner in which the War of 1812 was waged and the lack of interest manifested in some quarters. While out of the service some of his friends, the Chandlers at St. Albans, whom he visited, sought to prevent his returning to the army. But the desire for the military life proved too strong, and with the prospects of early engagements with the enemy, he returned to the service, and was transferred again on February 15, 1813, to the Sixth Regiment of Infantry.

Within a few weeks orders were received by this regiment to march to Sacketts Harbor to embark for a point unknown. On March 10th he wrote to his friend Dr. Chandler, in part:

"We have this day received orders to repair to Sacketts Harbor with all possible dispatch. We start on Saturday next, expecting to join 8,000 at that place, where doubtless we shall have an obstinate battle . . . I am again in the U. S. Service. I have not time to state particular reasons, but honor and gratitude to the officers for the friendly assistance in procuring the appointment, together with their anxious solicitude for me to continue with them, was one cause of my resuming my former station."

His regiment arrived at Sacketts Harbor on March 27th, and on April 13th he again wrote to Dr. Chandler:

"The regular force at this place is not so great as common report would have it. There are about 5,000 soldiers, sailors, and marines, exclusive of the Second Brigade, which arrived a few days since in the adjacent Towns of Brownville and Watertown, eight or ten miles distance. The Jesus-stealer, or Old Rifle's regiment, has not yet come

on. General Chandler takes the command, no other being present; General Wilkinson is expected to take the command of the Northern Army, and Colonel Pike is promoted to brigadier-general. An attack on Kingston is pretty certain as soon as the lake opens. The troops are all very healthy. I have but three or four sick in my regiment; have lost none on the march, nor since we arrived, tho' our situation is miserable. We are encamped where the mud and water have been over shoe in every direction, in open huts, without any straw, or more than our blankets to cover us. No new or strange disease has occurred since I saw you. No peculiar treatment is required to save the men; the old Brunonian practice, a little varied and changed into the Chandlerian, succeeds almost to a miracle. I have no remarks worthy of communicating, having had no very singular cases. Yesterday we shot a soldier of the marine corps for desertion; we could not obtain the privilege of dissecting him. Next Thursday another is to be shot."

We are fortunate in having Beaumont's diary of the period of his service in the war of 1812, so that full information as to his movements is available. Here are two entries:

APRIL 27, 1813:

"27th. Sailed into harbor (Kingston) and came to anchor a little below the British Garrison. We now filled the boats and effected a landing, though not without some difficulty and the loss of some men. The British marched their troops from the Garrison down the (hill) to cut us off in landing, and then they had every advantage. They could not affect their (plan). A hot engagement ensued, in which the enemy lost nearly a third of their men and were soon compelled to quit the field, leaving their dead and wounded strewn in every direction. We lost but very few in the engagement. The enemy returned into Garrison, but from the loss sustained in the 1st engagement, the undaunted courage of our men, and the brisk firing from our fleet into the Garrison with 12- and 32-pounders, they

were soon obliged to evacuate it and retreat with all possible speed. Driven to this alternative, they devised the inhuman project of blowing up their Magazine (containing 300 Bbls. powder), the explosion of which, shocking to mention, had almost totally destroyed our Army. Above 300 were wounded, and almost 60 killed dead on the spot by stones of all dimensions falling like a shower of hail in the midst of our ranks. The enemy had about 20 killed and wounded by the explosion, tho the main body had retreated far out of the Garrison. After this sad disaster our Army marched into the Garrison, hawled down the British coat of arms (which they were too haughty to do), and raised the American Standard on its place. Our Army was about 1,500 strong—Theirs about the same. Encampt in Garrison this night, mounting a guard 500 strong to secure our safety through the night. A most distressing scene ensues in the Hospital—nothing but the Groans of the wounded and agonies of the Dying are to be heard. The Surgeons wading in blood, cutting off arms, legs, and trepanning heads to rescue their fellow creatures from untimely deaths. To hear the poor creatures crying, “Oh, Dear! Oh, Dear! Oh, my God, my God! Do, Doctor, Doctor! Do cut off my leg, my arm, my head to relieve me from misery! I can’t live, I can’t live!” would have rent the heart of steel, and shocked the sensibility of the most hardened assassin and the cruelest savage. It awoke my liveliest sympathy, and I cut and slashed for 48 hours without food or sleep. My God! Who can think of the shocking scene when his fellow-creatures lie mashed and mangled in every part, with a leg, an arm, a head, or a body ground in pieces, without having his very heart pained with the acutest sensibility and his blood chill in his veins. Then, who can behold it without agonizing sympathy!”

MAY 27TH, 1813:

“27th. Embarked at break of day. Col. Scott, with 800 men for the advance Guard, supported by the first Brigade, comd. by Genl. Boyd, moved in concert with the shipping to the enemy’s shore and landed under the enemy’s Battery

and in front of their fire, under cover of our shipping, with surprising success, not losing more than 30 men in the engagement, tho the enemy's whole force was placed in the most advantageous situation possible. Notwithstanding, we routed them from their mounted and chosen spot, and drove them out of the country. Took possession of the Town (Newark) and Garrison. Killed of the British, rising 100; wounded, rising 200; prisoners, 100."

The Colonel Scott mentioned by Beaumont was Winfield Scott, later to become commander-in-chief of the Army (1841) and distinguish himself in the Mexican War, and known affectionately to his men as "Old Fuss and Feathers".

In another pocket volume, Beaumont kept an account of his medical and surgical labors. He tells us that at Sacketts Harbor the "type of disease was Intermittant, in many cases complicated with Peripneumony", for which he prescribed that popular old remedy, tartar emetic. There were throughout the campaign many cases of "dysenteries and diarrhoeas" and some cases of "Typhus", or as we should say, typhoid fever.

During his service at this time Beaumont himself was stricken with illness and was for some time—how long we do not know—under treatment at Fort George.

In August, 1814, he took part in the battle of Plattsburgh under General Macomb—the Adjutant General of the Army who took the field—and who with 7,500 men and a fleet of fourteen vessels, defeated General George Prevost with 14,000 men and sixteen vessels. This victory at Plattsburgh Bay helped to turn the tide of battle in favor of the land forces. Macomb was promoted Major General. In commenting on the work of the medical officers during the battle, James Mann, medical director at Plattsburgh, laments the failure to give proper credit for the bravery of these officers under fire while attending the wounded. While, he said, he could not discriminate in his praise of these officers, he mentions Beaumont as one of five who "have deserved well of their government".

In December, 1814, the Treaty of Ghent ended the war, and Beaumont contemplated a return to civil life. With the reduction of the strength of the army to 10,000, it became necessary to drop many officers. But on the basis of merit Beaumont was retained in May, 1815 with the Sixth Infantry, though hundreds higher in rank and older in service were dropped.

Of Beaumont's personal courage there can be no question. He was nearly involved in a duel with Captain Richards of the Artillery Corps, and indeed sent Richards a challenge, but the matter was smoothed over by mutual friends without bloodshed.

Though he had been retained in the service, Beaumont decided to resign because of insufficient prospect of advancement. He entered private practice with Dr. G. Senter, another famous old army surgeon. But like many officers who have once come to love military life, he was not satisfied out of uniform. In 1818 the newly appointed Surgeon General Lovell, an old friend, offered him a clerkship in the Surgeon General's Office, but though he at first accepted he later declined, as the salary was but \$1000 per year. He did, however, accept a commission as Surgeon in the New York Militia on April 6, 1819, at the request of Governor Clinton, whom Beaumont as a staunch Federalist, greatly admired.

He again entered the regular army on March 18, 1820, being commissioned Surgeon by President Monroe, with rank from December 4, 1819. He was immediately ordered to Fort Mackinac on the northwestern frontier, where he reported once more to General Macomb, under whom he had served at Plattsburgh.

His diary gives an interesting account of his journey to his new station and a detailed description of the Fort. He took up his duties as a medical officer, looking after the small one-story frame hospital. Here it was that he was called in to treat the accidental gunshot wound of the young Alexis St. Martin, and his researches with this patient—

"that old fistulous Alexis", as Osler calls him, are known to every student of physiology. I shall not attempt an account of them here.

He felt greatly hampered in his work at Mackinac, for there was no one to consult as to his work, there being no doctor within the radius of several hundred miles, and of course nothing even remotely resembling what we would call "laboratory facilities". He probably asked for a transfer to some eastern post, for a letter to him from the Surgeon General's Office, dated February 2, 1825, informed him that he would be ordered to Ft. Niagara. But by May the order had been revoked as the contemplated troop movement had been cancelled, and he resolutely continued his work at Mackinac. In June, however, to his joy he was transferred to Ft. Niagara and there he continued his experiments. Obtaining a leave of absence in July, he took his patient to Burlington, Vermont, and to Plattsburgh to exhibit him to physicians there. Here it was that St. Martin took "French leave", leaving Beaumont broken-hearted over his loss.

Early in 1826 Beaumont was transferred, accompanying troops, to Green Bay, Michigan Territory, where he was called upon to perform the same type of duty as at Mackinac. Here he saw active service against hostile Indians under Chief Red Bird, and was present with Major Whistler when Red Bird surrendered. Beaumont's duties took him to Fort Howard, and later to Fort Crawford, both in Michigan Territory, taking station at the latter on August 10, 1826.

At Fort Crawford, Prairie du Chien, Upper Mississippi, Beaumont recommenced his studies of the truant St. Martin, whom he had located and brought at his own not inconsiderable expense, to his post. Beaumont had begun to receive recognition for his work, and in May, 1831 was given permission to visit Europe for a year for study. But before he could leave, the order was rescinded. The beginning of the Black Hawk War in that year was the probable cause for Beaumont's retention in the United States.

During this period he had not only further experience with Indian warfare, but also with a still more terrible enemy. A wide-spread epidemic of cholera broke out. Beaumont's studies of it were published. The Black Hawk War was often called the "cholera campaign".

In August, 1832, Colonel Zachary Taylor, then in command of Fort Crawford, acting on War Department authority, gave Beaumont leave of six months for the purpose of visiting Europe. After visiting his home Beaumont went to Washington where he abandoned any idea of going to Europe, thinking that the time that would be available in Europe on but a six months furlough would be insufficient to accomplish anything. He accordingly spent his furlough in America, at its expiration being ordered to New York City, later being sent to Plattsburgh for recruiting duty.

In December, 1832, a way was found to help hold the elusive St. Martin, who continued to "escape" from time to time despite his promises to Beaumont. He was enlisted as a sergeant in the army. But as we know, even this did not hold Alexis.

In January, 1834, Beaumont's station was transferred to Jefferson Barracks, some twelve miles below St. Louis, but later he was sent to St. Louis Arsenal, where he was permitted to live in the city and engage in private practice, which soon became large and lucrative. In 1836 Surgeon General Lovell, Beaumont's good friend and supporter, died, and his successor, Surgeon General Lawson, was less inclined to grant him special privileges. It was rumored that he was to be transferred to Jefferson Barracks again, with consequent inability to practice in St. Louis. His friends among officers of the line, including Major Robert E. Lee and Major Ethan Allen Hitchcock, praised his work highly as did also the Missouri senators.

It must be admitted that Beaumont was lacking in tact, and the forceful language that he did not hesitate to use, even when addressing the President of the United States,

did not help his cause. The blow finally fell. General Order No. 48, dated September 18, 1839, assigned him to a board of officers to convene on November 15th following at Fort Brooks, Florida. Beaumont sought at once to resign, and though at first his resignation was refused until he had complied with the order, it was at length accepted on January 20, 1840. Beaumont made the further mistake of seeking reinstatement by direct appeal to President Van Buren, and in his letter characterized the Surgeon General as one whose capacity was zero. His friends Hitchcock and Lee in vain tried to restrain him. His desire to reenter the army came to naught.

So ended the military career of one of the most noted medical officers who has worn our uniform. The remainder of his life was that of a private physician in St. Louis, where he died on April 25, 1853.

General Order No. 40, War Department, June 26, 1920, announced that "the new hospital constructed on the military reservation at El Paso, Texas, will be known as the 'William Beaumont General Hospital' in honor of Major William Beaumont, surgeon U. S. Army (born 1785; died 1853), who during his service as a medical officer of the Army conducted epoch-making investigations of the physiology of digestion, and, as a result of his researches became the leading physiologist of the country and the first to make an important and enduring contribution to that science".

A final word. Osler himself planned to secure St. Martin's stomach for the Army Medical Museum, but when that celebrated patient died in 1880, an old man and the father of twenty children, Osler received a telegram: "Don't come for autopsy; will be killed", and St. Martin's neighbors guarded his grave by night.

I have here photostat copies of the old one-story frame hospital at Fort Mackinac to which Alexis St. Martin was removed when wounded and where he lay during his convalescence; a picture of Fort Michillimackinac in mid-

winter showing one of the block houses with the surgeon's quarters and hospital to the left of it; a picture of Beaumont's first commission as a surgeon's mate signed by President James Madison December 2, 1812; and a picture of his commission as a post surgeon of the army, signed by James Madison, effective from December 4, 1819. I will pass these around among the audience. I thank you for your kind attention.

THE BEAUMONT-ST. MARTIN CONTRACT AND THE DESCENDANTS OF DR. BEAUMONT*

HARRIS A. HOUGHTON
(Chairman, Beaumont Celebration Committee)

Obviously, a most unique contract, from the viewpoints of both medicine and law, was that one which was entered into October 16, 1832, between William Beaumont, Surgeon in the Army of the United States of America, of the one part, and Alexis St. Martin, Laborer, of Berthier, Province of Lower Canada, of the other part. You will remember that St. Martin, who was in his late twenties, had justly earned the reputation of being a most undependable person, at least in Dr. Beaumont's estimation, and that this idea of having a contract was probably born of a desire on the part of the Doctor to produce a psychological effect on St. Martin's acquisitive and puerile mentality. Certainly, there was no way to enforce its terms on St. Martin, except in those measures which may have been provided by law for the punishment of run-away indentured servants.

In September, 1832, Beaumont returned to Plattsburgh from the west with his family. For once, Alexis promptly appeared from his Canadian home according to promise. The contract was drawn up and signed as stated, and the third series of experiments followed.

*Delivered at a Stated Meeting of the Academy, October 5, 1933, in honor of William Beaumont.

Of the instrument itself, there are apparently two parts. The first appears to be the standard form used in legal circles for the binding of indentured servants, holding good for one year. It need not be repeated here. The second part immediately follows:

“And the said Alexis, for the consideration hereinafter mentioned, further especially covenants and agrees with said William, that he, the said Alexis, will at all times during said term, when thereto directed or required by said William, submit to, assist and promote by all means in his power, such Physiological or Medical experiments, as the said William shall direct or cause to be made on or in the stomach of him, the said Alexis, either through or by the means of, the aperture or opening thereto in the side of him, the said Alexis, or otherwise, and will obey, suffer and comply with all reasonable and proper orders or experiments of the said William, in relation thereto, and in relation to the exhibiting and showing of his said Stomach, and the powers and properties thereof, and of the appurtenances and powers, properties, situation and state of the contents thereof. It being intended and understood both by said William and said Alexis that the facilities and means afforded by the wounds of the said Alexis in his side and stomach shall be reasonably and properly used and exhibited at all times upon the request or direction of said William for the purpose of science and scientific improvements, the furtherance of knowledge in regard to the power, properties and capacity of the human Stomach.”

The final paragraph of the instrument relates to the compensation, viz., \$150.00 for the year's service and “found.”

This remarkable document was written by a Plattsburgh attorney, Jonathan Douglas Woodward, by name, and in its original form as preserved in the Library of the Washington University Medical School, St. Louis, it is in Woodward's handwriting. A photostat copy will be found in the exhibit. Attorney Woodward signed as a witness, and again signed Alexis St. Martin's name, who in turn gave his approval by making his mark. Both participating parties

were then sworn by Attorney Woodward as a notary, and the proper certification follows.

The moral effect of this contract lasted three months, when Alexis St. Martin was inducted into the army at Washington as a sergeant, and became amenable to martial law.

The name of Jonathan Douglas Woodward furnishes us with practically the only living connecting link with the times of which we have been speaking and the present. Attorney Woodward's daughter, Miss Helen D. Woodward, now lives in Plattsburgh, N. Y., a charming woman, ninety-two years of age. She was a graduate of Vassar College in the first class to receive degrees from that institution in 1867, and afterwards became principal of the Junior High School in Plattsburgh, a position which she held for many years. Consequently nearly everyone in Plattsburgh is familiar with her tall erect figure, her beautiful white hair, her dignified and kindly face. Her health is still good for one of her age, and she has extended her greetings to us to-night in a letter which will be found in the exhibit.

We are fortunate, in having here a long-standing friend of Miss Woodward's, namely, Mrs. George H. Tuttle, the only woman to occupy a seat on this platform. Although of Boston birth and youth, she lived her married life in Plattsburgh, and became much interested in the rich history of the Champlain Valley. She has written a comprehensive, authoritative work in this field, has been a Regent of the Daughters of the War of 1812, and was for many years, Curator of the Kent-Delord Museum in Plattsburgh. Particular consideration is accorded to Mrs. Tuttle to-night because you will find that Dr. Jesse Myer in writing the biography of Dr. Beaumont was careful to give her much deserved recognition for a large amount of work which she did for Dr. Myer in collecting original material for that book. Mrs. Tuttle has given of her time and energy much to your present Committee, and we desire to thank her for this service.

A word concerning Dr. Beaumont's descendants might with propriety be included here. Of three children who achieved maturity, only one, Israel Green Beaumont (named from his mother's father) left children. Mrs. Keim, a sister mentioned several times in Dr. Myer's biography, though living in St. Louis in 1912 when his book was published, is now dead. She died without issue and no descendants of Dr. Beaumont are now living in St. Louis. Of Israel Green Beaumont's children, there were six, who reached maturity. The Misses May and Sophie Beaumont, spinsters on the twilight side of 50 years, now live near Green Bay, Wis., presumably on land which their grandfather purchased when he was post surgeon at Fort Howard. They own a few relics of Dr. Beaumont, a daguerreotype portrait, a painted portrait of the "incomparable" Deborah Beaumont, which is companion picture to that painting reproduced on the souvenir programs to-night. A signed letter of greeting and congratulation from the Misses Beaumont will be found in the exhibit. You are familiar with the fact that Dr. Beaumont's papers were given to the Library of Washington University, St. Louis, by Mrs. Keim, of which institution he was one of the founders, and they form a permanent exhibit there. A sister, Julia, married one, W. N. Cummings and had five children. This family resides in California. Ethan Allen Beaumont married and had two daughters. One married a "Brown" and the other, May, married one "Brotherton." The name of William Beaumont is perpetuated in this family. I am uninformed as to their residence.

The historical records of the Academy have been immeasurably enriched this week, by a gift from Dr. Irving Pardee. The two items consist of a daguerreotype of Dr. Beaumont, which hitherto was not known to exist, and an original letter written by Dr. Beaumont in 1826 to his brother Abel Beaumont who resided in New London, Conn. Both will be found in the exhibit.

THE BOOK OF WILLIAM BEAUMONT AFTER ONE HUNDRED YEARS*

WALTER B. CANNON

GEORGE HIGGINSON

Professor of Physiology, Harvard Medical School

We have met together this evening to commemorate, not the birth or death of a great man, but the hundredth anniversary of the publication of a book. That book, which appeared in the fall of 1833, had no preparatory acclaim, it was not featured in extensive advertising, it was a modest octavo volume, printed in a newspaper office in the small town of Plattsburgh, bound in pasteboard, and sold by subscription. Certainly this was not a promising start. And yet, five years later the book was reprinted in an English edition, nine years later still (in 1847) a second American edition was brought out, and meanwhile, in 1834, a German translation had been published in Leipzig. In 1929, when the thirteenth International Congress of Physiology was held in Boston, the Federation of American Societies of Experimental Biology, which on that occasion acted as hosts to visiting physiologists, biochemists and pharmacologists from all parts of the world, memorialized Dr. Beaumont in a medal and presented to the members of the Congress a facsimile reproduction of Beaumont's famous volume.**

In the period between 1833 and 1933 thousands of other books have been written and published, have had their brief day and ceased to be. What was there in Beaumont's writing that endowed it with vitality and permanent value? It possessed those qualities because it embodied the simple, straightforward report of a scrupulously honest man who used his senses cautiously in a significant scientific enquiry, who recorded exactly how he used them and what they re-

*Delivered at the Stated Meeting of the Academy, October 5, 1933, in honor of William Beaumont.

**It is worthy of note that Dr. John F. Fulton, Professor of Physiology in the Yale School of Medicine, permitted his copy of the first edition of Beaumont's classic to be cut apart for the zincograph process involved in the exact reproduction of the original pages.

vealed, and who drew limited inferences from the observed facts. He had, to be sure, an unusual condition to study and describe—a human being with a direct opening into the stomach on the left side of the body, through which instruments and food could be introduced and through which also the gastric contents and the digestive juice could be extracted. The willful, bibulous, and at times probably patient, Alexis St. Martin was not, however, the first person who had a gastric fistula. Myer¹, in his biography of Beaumont, cites an impressive number of such cases which had been noted in medical literature before 1830. In none of them had there been a man at hand who had the interest, the sense of value and the persistence that William Beaumont manifested during the years of his investigation.

The conditions which surrounded him were in many respects highly unfavorable both to the prosecution of research and to the securing of satisfactory results. It was at a frontier army post on the Island of Machilimacinac, near the union of Lake Michigan and Lake Huron, that the young Canadian hunter, Alexis St. Martin, received the gun shot which fractured ribs and made openings into the cavities of the chest and abdomen. Portions of the lungs and stomach, much lacerated and burnt, protruded through the openings, making, according to the record, "an appalling and hopeless case." The life of the wounded man was despaired of, but, by careful attention and treatment, and, no doubt in part because of his own youthful vigor, he recovered, in about ten months, sufficiently to promise ultimate survival. Even at that time, however, he was "altogether miserable and helpless," and since no one else would look after his needs, Beaumont took him into his own home and "medically and surgically treated and sustained him, at much inconvenience and expense, for nearly two years, dressing his wounds daily, and for a considerable part of the time twice a day, nursed him, fed him, clothed him, lodged him and furnished him with such necessities and comforts as his conditions and sufferings required" (1, p. 213).

The opportunity for making the "experiments and observations" was obviously not one that was presented ready for use but was the consequence of persistent and exacting professional skill and of humane consideration for a desperately injured man. Toward the end of the long and tedious convalescence the unique chance of studying "the gastric fluids and the process of digestion" in a normal human being became apparent. And in August, 1825, Beaumont made a few tentative observations (he records only four) on gastric temperature and the changes in beef and chicken as they occurred in the stomach and in glass vials containing extracted gastric juice. He was not able to continue these observations, however, because St. Martin, ungrateful to the physician who had saved his life, took what may be called "Canadian French leave," and returned to his home near Montreal. There he married and though employed by the Hudson Bay Company managed to support his wife and children only in miserable poverty. Meanwhile Beaumont had urged friends in the American Fur Company to be on the lookout for the missing man and had spent sums from his own meagre income as an army surgeon to obtain trace of him. After St. Martin's whereabouts were discovered, in 1827, two more years passed before he was persuaded, with "considerable difficulty and at great expense to his benefactor" to make the journey of nearly two thousand miles with his family from their Canadian home to Fort Crawford, on the Mississippi River, in Michigan Territory, the city where Prairie du Chien*, Wisconsin, now stands and where Beaumont was then stationed.

Old Fort Crawford was built on the flood plain of the Mississippi just above the point where the Wisconsin River contributes its waters—a flat stretch of land below the limestone bluffs, that had long been a natural center of

*"Chien" pronounced "sheen." When the troops left the settlement in 1856 the local newspaper printed the lines:

"The like o' them may never be seen
By boys or men in Prairie du Chien."

intercourse and barter for the Indian tribes of the region and which became naturally a convenient meeting place for Indians and traders at a later day. The place witnessed in a typical fashion all stages of the advance of the American frontier. As Mahan² has written, in his entertaining story of the Fort, Prairie du Chien "was a focal point in an area where a colorful pageant of the Middle West unfolded—the coming of the French, the supremacy of the English, ... the establishment of military posts by the United States, and the founding of American communities. Indians, French explorers, missionaries, traders, trappers, *voyageurs* and *coureurs des bois*, Englishmen, Spaniards, Americans, miners, frontier soldiers and settlers were the characters in this struggle of nations for the wealth of the Upper Mississippi Valley—fur and lead and homes." In 1825, hundreds of representatives of the various Indian tribes, all arrayed in their picturesque devices of decorative feathers, quills and horse hair, and carrying their painted war clubs and drums, met on the Prairie in what has been called one of the most imposing councils ever held between the whites and the red men. Here was the very edge of our civilization. To this straggling frontier village, with its nondescript population of Indians, Frenchmen, half-breeds, and a few American settlers, Dr. Beaumont brought his family in 1826. There Alexis St. Martin came three years later, and there he and his family remained in Beaumont's employ from August, 1829 to March, 1831—a period marked by turbulence and anxiety because of the restlessness of the hostile Indian tribes.

I have described the conditions at Prairie du Chien and at Old Fort Crawford in order that the unpropitious background of circumstance in which Beaumont carried on his physiological studies may be understood. In an environment where the very words "scholarship" and "research" would not be comprehended, with none of the opportunities for conference and sympathetic discussion with fellow-workers that we call "atmosphere," indeed, with no scientific companions; with no library, no journals, no possibilities of consulting experts in any difficulty; and with no

laboratory equipment except a thermometer, a few vials, and a sand bath, he carried on a series of observations on the gastric juice and the gastric digestive process which during the hundred years that have elapsed since then have not failed to call forth the admiration of all who have read his record. He was a frontiersman in a new realm of intellectual interest, while surrounded by the most grim and forbidding environment of a frontier of civilization. And because, as he wrote, he conducted his investigations in "the true spirit of enquiry," without any "particular hypothesis to support," and because he "honestly recorded the result of each experiment exactly as it occurred," his observations have been a permanent monument to his devoted labor.

During the winter of 1832-33 Beaumont was given a six-months' furlough which he spent in Washington. There he had opportunity to consult the writings of other men who had studied and thought about the functions of the stomach—an opportunity which he used in part to make an elaborate and detailed summary of previous literature, with comments based on his own experience. There also he conducted a third series of experiments on St. Martin. After a period of service in this city of New York during the spring of 1833, he was, in July, transferred to Plattsburgh, where he made more observations (a fourth series). Although the third and fourth series were carried on under more favorable circumstances than those prevailing at the frontier army post in the wilds of Michigan territory, the methods employed were those which he developed there and the results obtained were in large degree confirmatory of the earlier results. It was at Old Fort Crawford, surrounded by savages and rough pioneers, that Beaumont laid the foundation for both of his later studies.

In the quiet of Plattsburgh during the summer of 1833, the book, "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," was prepared for publication. Beaumont confessed that he found it "an immense job"—like many another investigator when he

has come to the task of describing what he has done and what he has discovered. In the autumn of that year, almost exactly a century ago, the first copies of the volume appeared and began to be distributed.

I have suggested earlier that the reason for the permanent value of Beaumont's book lies in the straightforward recording of observed facts. That aspect of his contribution to medical science he himself emphasized. And that aspect was stressed also by Sir Andrew Combe, the Edinburgh physiologist, who sponsored the English edition of the book, which was published in 1838.

"Among the disciplined physiologists of Europe," Combe wrote, "a more systematic experimenter might certainly have been found, but in Dr. Beaumont's instance the absence of systematized inquiry—made too generally in support of preconceived theory, and therefore apt to mislead as well as instruct—is more than compensated by the implicit reliance which one feels can be placed on the accuracy and candor of his statements. Having no theory to support, and no favorite point to establish, Dr. Beaumont tells plainly what he saw, and leaves everyone to draw his own inferences; or, where he lays down conclusions, he does so with a degree of modesty and fairness of which few persons in his circumstances would have been capable."

This judgment, though discriminating, does not, I think, sufficiently stress Beaumont's boldness and independence when he was convinced of the correctness of his facts and the reasonableness of the inferences to be drawn from them. Consider, for example, his discussions of thirst. In 1833, Magendie was one of the foremost physiologists of the world. He had written that "thirst is an internal sensation, and instinctive sentiment," "the result of organization, and does not admit of any explanation." Beaumont, "a mere tyro in science," "a simple experimenter," as he modestly called himself, utterly rejected the limitation which the renowned physiologist had laid down: "Thirst is no more an instinctive sentiment," he declared, "than any other sensation of the economy; to say it is the result of organization gives no explanation, amounts to nothing, and is certainly, to say the least, a very unsatisfactory way of disposing of the question" (3, p. 61). And in the face of the edict that

thirst is inexplicable, Beaumont suggested that it is a sensation arising from the mouth and fauces, a feeling of dryness due to evaporation of moisture from the surfaces of those regions, because the respired air passing to and fro over them takes up the moisture faster than it can be supplied. In attributing thirst to a local source at the back of the buccal cavity the backwoods physiologist was, according to modern evidence, on sounder ground than Magendie's successor, the eminent French savant, Claude Bernard, who regarded it as a "general sensation."

And consider Beaumont's comments on the nature of hunger—another example of his clear thinking and self-reliance. With reference to the statement that hunger is produced by action of the nervous system and has no other seat than that system, he affirmed, "I cannot perceive that such explanations bring the mind to any satisfactory understanding of the subject. In such a broad proposition it is difficult to ascertain the exact meaning. If the design is to convey the impression that hunger has no 'local habitation'; that it is an impression affecting all the nerves of the system in the same manner, then the sensation would be as likely to be referred to one organ as another." Furthermore, he argued against certain explanations of the local gastric source of the hunger pang. It is not due to the friction of the internal coats of the stomach for three different reasons which he advanced; nor due to irritation of a quantity of gastric juice in the stomach for it is not there; nor to the "energetic state of the gastric nerves" as had been suggested, for that is unexplored territory; nor to the "foresight of the vital principle," a phrase which, at a time when Johannes Müller was supporting vitalism, Beaumont declared "means anything, everything or nothing, according to the construction which each one may put upon it" (3, p. 55). These frank, incisive comments give relish even as one reads them today. "Such explanations," in his opinion, "conduce nothing to the promotion of science. They are mere sounds and words, which ingeniously convey a tacit acknowledgment of the author's

ignorance." Beaumont reasoned that the sensation of hunger must have its source in the stomach itself—a view which is supported by modern evidence. And he carefully recorded (3, p. 208) that when food was introduced through St. Martin's fistula the sensation of hunger immediately disappeared and therewith "stopped the borborygmus, or croaking noise, caused by the motion of air in the stomach and intestines, peculiar to him since the wound, and almost always observed when the stomach is empty." The result of this experiment was cited to indicate that the sensation of hunger originates in the stomach, but the further inference was not drawn that the "croaking noise" could only be due to a vibration of air forced by muscular pressure through a narrow orifice. If that step had been taken, the present explanation of hunger as a result of strong contractions or spasm of the gastric musculature would have long been anticipated.

Equipped, then, with a true appreciation of the opportunity which chance had offered him, with enthusiastic persistence in his quest, with shrewd and critical powers of observation, with sincere purpose to record accurately what his experiments revealed, with a high degree of independence and self-reliance in his judgment—and with little else—Beaumont pursued his studies, when his duties as army surgeon did not interfere, during the years 1829-1833. At the end of his book he listed fifty-one "inferences" from his tests and experiments. A few of these inferences have been superseded because they were not in accord with results obtained later under more favorable conditions; some of the inferences anticipated in a remarkable manner facts proved by quite modern investigations; and many of them have been confirmed and incorporated in the general body of physiological and clinical knowledge. It will not be possible here to consider in detail all these aspects of Beaumont's contributions. We must restrict our attention to relatively few of them, and in doing so it would be well for us to keep in mind the words of Meek⁴:

"One must remember the scientific condition of his times. . . . When Beaumont was working at Old Fort Crawford there was no such science as organized physiology. Ludwig, Helmholtz and Bernard, the great masters of this medical field, were boys of five, ten and eighteen years. Hoppe-Seiler was five years old, and Kühne and Emil Fischer were yet unborn. Beaumont never heard such terms as 'protein,' 'enzyme,' 'calories' or 'vitamines'."

Problems of importance at the time centered on the nature of gastric juice. There was still discussion concerning its acidity and its action as digestive agent. Beaumont took part in settling these questions. In 1824, Prout had shown that during digestion the juice contains hydrochloric acid—a discovery made independently by Tiedeman and Gmelin and reported in 1826. Beaumont's observations in 1825 proved that the human juice is a very active solvent; and in the samples which he submitted to Dunglison and Silliman for analysis an amount of hydrochloric acid was found which was surprisingly large. The description of gastric juice which Beaumont presented in his book is an excellent example of simple, clear statement:

"Pure gastric juice," he wrote, "when taken out of the stomach of a healthy adult, unmixed with any other fluid, save a portion of the mucus of the stomach with which it is most commonly and perhaps always combined, is a clear, transparent fluid; inodorous; a little saltish, and very perceptibly acid. Its taste, when applied to the tongue, is similar to thin mucilaginous water, slightly acidulated with muriatic acid. It is readily diffusible in water, wine or spirits; slightly effervesces with alkalis; and is an effectual solvent of the *materia alimentaria*. It possesses the property of coagulating albumen, in an eminent degree; is powerfully antiseptic, checking the putrefaction of meat; and effectually restorative of healthy action, when applied to old, foetid sores, and foul, ulcerating surfaces" (3, p. 84).

That is a fairly detailed account of the properties and functions of the gastric secretion. It is interesting to note that Beaumont took care to test comparatively the action of a measured amount of dilute hydrochloric acid by itself and a measured amount of the juice on the same quantity of boiled beef, and, finding that the juice completely dissolved the beef while the acid only turned it to "a jelly-like consistency," he drew the prudent conclusion that "probably the gastric juice contains some principles inappreciable to the senses or to chemical tests." In 1835, Schwann

proved the correctness of Beaumont's keen insight by demonstrating the presence of one of these "principles," the enzyme, pepsin. Rennin is perhaps another. And now the latest studies on pernicious anemia indicate yet another "principle" in the gastric juice, the nature of which is still obscure.

Although Beaumont did not note the nice relation between the mastication of sapid food and the flow from the stomach wall, which we recognize as "psychic secretion," he found that when "alimentary matter" is received in the stomach the juice exudes from its "proper vessels" and "increases in proportion to the quantity of aliment" (3, p. 85)—an observation quite in accord with the much later, more exactly quantitative studies of Pavlov.

No such elaborate examination of the temperature of the viscera has been undertaken by any other investigator as that conducted by Beaumont (cf. 3, p. 273). He read the thermometer introduced into the stomach during repose and after exercise, while the organ was empty and while digesting, when healthy and when inflamed, on days cold and days warm, and in all sorts of weather. It was his only fairly exact instrument and he used it fully. Exercise elevated the temperature, he found, an observation abundantly confirmed by more recent studies. And he was led to compare the effects of temperature on digestion *in ventriculo* and *in vitro*, when he noted that only if the gastric juice was kept warm did the process of chymification go on in a satisfactory manner. When the cold juice was warmed, however, "digestion commenced, and advanced regularly" (3, p. 152). He suggested that the accelerating influence of gentle exercise on gastric digestion might be due to the increase in temperature, for gastric juice "like other chemical solvents," he wrote, would have the rapidity of its action "increased in proportion to the elevation of temperature" (3, p. 94).

By comparing the course of digestion of food introduced in fine division and in coarse lumps into the stomach, and by similar experiments in glass vials, Beaumont was led to

lay emphasis on the importance of mastication, which he regarded as "absolutely necessary to healthy digestion." If meat in a large mass was passed through the fistula it underwent digestive changes much more slowly than if minutely divided. The quantity of the food likewise affected the speed of the digestive process. Although Beaumont made extensive and repeated observations on the time required for chymification of various foods (cf. 3, pp. 41-45, 269-272), and from these data drew the general conclusion that "*animal and farinaceous* aliments are more easy of digestion than *vegetable*," and although his tables of digestibility of different articles of diet have been generally regarded as an important contribution to practical dietetics, the absence of reference to the state of comminution of the foods, and especially the failure to state the amounts ingested, must be regarded as seriously affecting the reliability of the figures.

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In connection with the study of the treatment of different food-stuffs in the stomach, there were incidental observations of some interest. One was the surmise that "the ultimate principles of nutriment are probably always the same, whether obtained from animal or vegetable diet" (3, p. 36). As Meek⁴ has pointed out, it was not until the time of Emil Fischer that these words of Beaumont were proved to be significant and indicative of a prophetic shrewdness of reasoning. Another incidental fact noted by Beaumont was that fat or oily foods, "though containing a large proportion of the nutrient principles," are difficult of digestion, i.e., they remain long in the stomach. This observation is quite in accord with results of recent studies which have shown that fats retard the secretion of gastric juice, diminish the intensity and speed of peristalsis, and cause reflux of bile into the stomach—a phenomenon seen to occur in Alexis St. Martin (5, p. 115). Quite unlike "oily substances" are "*vater, ardent spirits* and most other *fluids*"; they "are not affected by gastric juice, but pass from the stomach soon after they have been received" (3, p. 97). This observation, likewise, has received support in

relatively recent work. Cohnheim⁶, in 1907, called attention to the rapid discharge of water through the pylorus, and assumed that it passes by way of the "Magenstrasse," a channel along the lesser curvature, directly from the cardia to the pyloric opening. All these confirmations of Beaumont's reports testify strongly to his skill and insight as an observer and to his exactness as a recorder.

With consideration of the handicaps under which he labored his description of the motions of the stomach is quite remarkable. He was able to identify "particular portions of the food" as he looked through the fistula, and by noting their movements and also the movements of a thermometer pushed various depths into the gastric cavity, and finding occasional resistance to its withdrawal, he came to the conclusion (3, p. 115) that

"the circular or transverse muscles contract progressively, from left to right [he speaks elsewhere of *peristaltic* motion]. When the impulse arrives at the *transverse band*, this is excited to a more forcible contraction, and, closing upon the alimentary matter and fluids, contained in the pyloric end, prevents their regurgitation. The muscles of the pyloric end, now contracting upon the contents detained there, separate and expel some portion of the chyme."

This is a quite exact account of the type of peristalsis seen in the human stomach, when the peristaltic wave is followed by systole of the antrum—an account all the more remarkable because so largely inferred from the behavior of the projecting end of a glass rod! The inference that the peristaltic wave normally reverses and that there is a circulation of the gastric content along the walls was not so happy, for X-ray examination of the stomach does not support it.

There remains to be considered Beaumont's testimony regarding certain conditions which may influence the digestive process. He noted that "severe and fatiguing exercise retards digestion" (3, p. 94). In 1911, Mantelli⁷ likewise observed that exhausting labor is associated with failure of proper action of the gastro-intestinal tract—for an hour or two after strenuous muscular exertion the stomach does not respond normally to the presence of food. Again, Beaumont noted in St. Martin the participation of

the stomach in a general bodily disorder. Occasionally there was an abnormal appearance of the gastric mucosa accompanied by dryness of the mouth, thirst, exaggerated pulse, etc. Under these circumstances, he states, "no gastric juice can be extracted, not even on the application of alimentary stimulus . . . food taken in this condition of the stomach remains undigested for 24 or 48 hours, or more, increasing the derangement of the whole alimentary canal, and aggravating the general symptoms of the disease" (3, p. 108). Similar observations by recent investigators has paid tribute to Beaumont's sure vision. Alvarez⁸ has cited autopsies on patients who have died of botulism, in whose stomach has been found food eaten many days before, when the trouble commenced. And similar stagnation of the gastric contents is often noticed in men and women suffering from tuberculosis and other infectious diseases.

Finally may be mentioned Beaumont's testimony to the profound influence of emotional disturbances on the secretion of gastric juice and on digestion. He had more than one occasion to see the phenomenon in St. Martin. Violent passion, he declared, is likely to cause a reflux of bile into the stomach, a change in the properties of the chyme, and a retardation or other disturbances of the chyme in its passage onward into the intestines (3, pp. 153-154). Fear and anger, he noted, check the secretion of gastric juice (3, p. 87). These relations between strong emotions and the inhibition of both gastric secretion and gastric discharge are fundamental not only for the physiology of the digestive canal but also for the clinical understanding of digestive disorders.

Such, then, are some of the more outstanding results of Beaumont's four years of research on St. Martin. There were, however, important indirect results. In 1843, a French investigator, Blondot, took the hint offered by the accident to the Canadian hunter, and began an experimental study of digestion by making an artificial gastric fistula in animals. At about the same time, and, it seems, quite

independently, Bassov, a Russian, did likewise. A few years later Claude Bernard also made use of the method for a variety of purposes. In 1876, toward the end of his career, Bernard⁹ testified that Beaumont's researches had opened a new epoch in the history of our knowledge of the digestive processes. This judgment had been formed, however, much earlier, as proved by the following letter from W. G. Edwards, an American student in the Paris laboratory, who, in 1850, wrote to Beaumont in these words:

"The publication of your observation, exposing so clearly and analytically the physiology of the stomach, was the commencement of a new era in the study of this important organ and those associated with it. Your experiments are constantly imitated here upon animals, by a large number of investigating physiologists, among whom M. Bernard probably stands first. His discoveries . . . have rendered the functions of the pancreas, liver, etc., as clear as yours did those of the stomach, but his observations have necessarily been limited to animals, and in the absence of yours upon man would lose much of their value, since no other evidence exists of the identity of the process of digestion in man and the lower animals" (1, p. 289).

The use of the fistula method for examining the digestive functions reached its climax in the renowned researches of Pavlov and his school at Leningrad, that gave to Pavlov the Nobel prize. In his well-known treatise, "The Work of the Digestive Glands," Pavlov recognized the path-finding contribution of the pioneer American physiologist.

In closing may I be permitted to make a few general comments on Beaumont and his services to medical knowledge.

It is a phenomenon of arresting importance that some of the most valuable additions to science have been made by members of army medical corps. So long as he was engaged in research Beaumont belonged to that division of the United States Army. It was another member of the Corps, A. J. Myer, who "during his leisure hours at his isolated post" in New Mexico, devoted himself to devising a simple method of visual communication, which developed into the wig-wag system and the modern Signal Corps of the Army. Still another army medical officer, Walter Reed, carried on the investigations which have freed vast areas from the dread scourge of yellow fever. I need only men-

tion Ronald Ross, David Bruce, William Leishman and Laveran, to bring to your minds the striking fact that physicians in army service have made some of the most significant contributions to medical progress. How shall we account for this fact? Although the circumstances may never have been so unfavorable as they were at Old Fort Crawford, rarely have they included handy and well-equipped laboratories, libraries and stimulating atmosphere. Is it not possible that the essential condition that was provided was leisure—freedom from social and professional demands, from boards and councils, from commissions and committee meetings, from all manner of distracting obligations? You may outfit an investigator in a dusty garret or a dark cellar, you may pay him so little that he must live on simple fare and clothe himself in frayed garments, but if you provide him *time* he can advance his work. Take away time but give him all else in a manner *de luxe*, and he is useless. Necessity may be the mother of invention, Michael Foster once remarked, but “leisure is the mother of discovery.” That leisure was the essential condition for Beaumont’s success is indicated by a letter which he wrote April 16, 1833, after six weeks in New York City.

“I have been unable to do much at accurate experiments and observations since I came here, so numerous and increasing are the calls of the curious, the social, the scientific and the professional . . . I am determined to do it [i.e., complete a series of studies] soon, however, if I even have to shut myself up with Alexis in a convent, or retire to some seclusion in the country. My official duties are very light, and would not interfere at all with my experiments, could I avoid the vexatious social intercourse to which I am perpetually exposed in this City. It is an unfavorable place for the pursuit of physiological inquiries and experiments” (1, p. 168).

No doubt the charge brought against the City of New York in 1833 could quite as justly have been brought against other large cities at that time. Laboratories have since provided the “seclusion” which Beaumont sought, but even their isolation may be endangered. It is time, free time, that must be assured, a proviso which Beaumont pathetically lost in the years of his active practice in St. Louis after leaving the Army.

Earlier in this address I referred to Beaumont, conducting his researches at Prairie du Chien, as being a frontiersman in two senses—in the dim region that lies between the known and the unknown, and in that advancing fringe of civilization whose movement westward has been one of the most romantic and stimulating aspects of our country's history. Observers of events have called attention to the disappearance of our geographical frontier. The boldness, resourcefulness, imagination, the hardihood and self-reliance, which pioneer life and its sudden hazards demanded, are said to be no longer requisite. And we are advised that we must settle down to the hum-drum of organizing our ways in rigid positions. Is not that prospect outlook, however, too superficial and too bleak? In one of his essays Samuel Crothers once remarked that there was no fixed line between the East and the West—it lay where the look changed from day-before-yesterday to day-after-tomorrow. In our laboratories the forward look of American pioneers is still possible and will continue to be possible for indefinite time to come. The frontier of knowledge is pushed forward with painful slowness, and always as new advance is achieved, new territory to be explored is freshly revealed. One can enter a laboratory, set to work, and in a short time see things quite as unexpected and thrilling, and perhaps more significant, than anything to be found by traveling to the earth's frigid poles. We may feel grateful that the attractions and excitements and rewards of pioneering are still provided in the realm of scientific research, and that the admirable virtues of the frontiersman are still serviceable in securing the advancement of knowledge.

Every community in the western sweep of American civilization had as a part of its history that heroic period when log cabins or sod huts, dangers from hostile savages, and hardships and privations, had to be endured. In the main the memories of those days of peril and hardihood have faded away. They have been displaced by the obvious development of cultivated farms, of organized cities, and

the establishment of schools and universities, made possible because of victory in the harsh struggle against the wilderness. Old Fort Crawford has disappeared, until no trace remains. The part it played in the westward migration of our people has been largely forgotten. But, as we have seen, the Fort served for a few years as a place where pioneering in science was carried on. That sort of pioneering is almost certain to make a persistent impression. Its results must be recorded in printed words. The words are lasting, and perhaps long afterwards the facts which they proclaim fit in with the facts obtained by others. Thus the firm structure of scientific truth is built. Though the Old Fort on the Upper Mississippi has vanished, the results of the experiments which Beaumont conducted within its walls have come down to us with undiminished lustre through these hundred years and are an enduring portion of America's gift to knowledge. "Truth, like beauty," Beaumont wrote, "when 'unadorned is adorned the most,' and in prosecuting these experiments and enquiries I believe I have been guided by its light." Such are the ideals of every frontiersman in science, and insofar as he lives up to them he leaves behind him, as Beaumont did in his book, permanent contributions from his fleeting years.

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GEORGE DAVID STEWART

A TRIBUTE

The death of our confrère, Doctor Stewart, on March 9, 1933 was an inestimable loss to the Academy and brought deep sorrow to the members and to the entire medical profession. His friends find it hard to be reconciled to his passing away.

He was born December 28, 1862 on a farm at Malagash. This is a place on the coast of Northumberland Straits, Nova Scotia; farming and lumbering are the chief industries there. He was the eldest child of David and Mary Jane MacCallum Stewart, both natives of the province and of purely Scottish descent.

His father died before George was seven years old and he went to live with his grandfather Stewart on the old farm. He had a great love for his mother and his grandfather, and nearly every year to the last he went to visit there; he and his mother who still is living at the age of ninety-five, kept up an active correspondence through the years.

He had a strict religious bringing-up at home, based on Calvinistic tenets and Scotch Presbyterian Covenanter practice, devout and uncompromising. Religion was bred in him, line upon line it was woven into his character, became part of his culture. Its principles underly the serious decisions of his life. Yet this was not often openly manifest. He had no use for the "unco guid or rigidly righteous." He took some license in his speech but neither coarseness nor vulgarity was in him.

George Stewart had the "Psalms of David in Meter" by heart before he was ten and had committed to memory a great deal of the New Testament. At fourteen he had read extensively the Bible and *The Pilgrim's Progress*, Robert Burns and most of the English poets; probably from these his deep love of poetry developed. "Poetry is like music,"

he once said, "poetry is music and for that reason I always prefer rhyming verse, when possible, to blank measure." Poetry was always in the subconscious stratum of his brain.

When George David was fourteen he skipped away to be a sailor. After a few weeks he tired of this when "having pushed the old schooner for three days against the wind he found himself twenty miles behind where he had started," he felt it was no place for him, so he then and there resigned.

Back at school again, he soon obtained a teacher's certificate, and taught school for one or two terms. He then went to the Teachers' Training School at Truro graduating when he was twenty-one in 1884. In the fall of that year Mr. Stewart took charge of the High School at Antigonish. The Roman Catholic College of St. Francis-Xavier is in this town; it is affiliated with the public school system of Nova Scotia, "a college superb in mathematics, the classics and theology." Here Mr. Stewart taught didactics and one or two other subjects, in return for which he had private lessons from the Rector, who later became Archbishop of Ontario.

In this period of his life those who impressed him most were his mother, his grandfather and a Professor Hall at the Normal School, "quite a remarkable man."

George Stewart himself was a man of marked individuality, a sensitive man, quick to see and quick to feel and temperamental to a degree. He had a receptive mind, he developed a very retentive memory and he enjoyed intellectual pursuits. Living among a people strong for education it then seemed likely that he would continue to follow teaching as a profession. He had no thought of studying medicine until he was at the High School.

Here at Antigonish he had the good fortune to meet and to become intimately acquainted with the man who had most to do in shaping his career, Doctor William Henry Macdonald, a practitioner known and loved far and wide throughout that country for his skill and understanding. He was twice Stewart's age. He had a good classical edu-

cation, he was very familiar with Latin and Greek, had a reading acquaintance with French and German, and kept himself posted in current news and literature—altogether an exceptional man and practitioner much ahead of his country colleagues. Doctor Macdonald was a graduate of Harvard Medical School, 1862. Young Stewart rode out with him often on his rounds into the country after school hours and on week-ends and they were fast friends for thirty years until Doctor Macdonald's death in 1915. George had many of his anecdotes and stories from Doctor Macdonald.

This close association and friendship turned Stewart to medicine, but strange to say, he matriculated not at Harvard but at Edinburgh. However, he did not go to Edinburgh. In fact it was late in life before he ever crossed the ocean. Several reasons, among them distance and financial considerations, made him change his plans, and the reports of one or two of his friends who had just returned as graduates of Bellevue, who spoke in high terms of the courses there. Considering these things and that New York held greater opportunities than Edinburgh, he came to Bellevue Hospital Medical College in 1886, was graduated in 1889 and by October, 1890 he had completed his internship on the Third Surgical Division of the hospital.

He had now another serious matter to decide. Doctor Bryant and Doctor Dennis were the active surgeons on the Third and Doctor Charles Phelps on the Fourth Division and all three were at St. Vincent's; Bryant was professor of anatomy and Dennis of surgery at the College. Through these men of prominence rare opportunities in New York were presented. Stewart wanted to remain in New York. Nevertheless he had promised his friend John McKay (M.D. Bellevue '86), to take his practice in New Glasgow, a coal-mining town in Pictou, Nova Scotia, while McKay went to Edinburgh for a postgraduate course and, being a man of his word Stewart did so and was gone about a year. During this year in Nova Scotia he married Miss Ida M. Robb of Antigonish. On his return to New York he

established himself in an office on Lexington Avenue near Thirtieth Street.

He was now in his thirtieth year, had had considerable experience in practice and he was a certified teacher; with these qualifications all he needed was hospital and college opportunities. These he soon obtained, indeed it was a tentative promise of this kind that justified him in coming back. Professor Bryant made him one of the prosectors of anatomy, an arduous job which has its immediate reward in the satisfaction from hard work well done. In 1892 he was made assistant demonstrator, and in 1897 he rose to the full professorship. This steady and rather rapid advance was due entirely to his own industry and merit. He had great ability and force as a teacher of anatomy, especially in its practical applications, and he made the subject attractive and useful to the student not spending hours and hours on one aspect of the subject for example; he had a full sense of the relative value of things.

At the time he became demonstrator he was appointed assistant visiting surgeon to Bellevue and soon afterward to St. Vincent's Hospital. He assisted Doctor Dennis in private practice for a while. It was at these two institutions subsequently where practically all of his operative work was done and he became a dominant force at each.

Doctor Stewart held the chair of anatomy and clinical surgery in the medical school until the resignation because of ill-health of Doctor B. Farquhar Curtis, the professor of the principles of surgery and clinical surgery in 1909, when he took up the duties of that chair and on the death of Professor Bryant in 1915 he succeeded to the professorship of surgery.

He had a real genius for teaching, it was a talent already shown before he became principal of the High School at Antigonish. A successful teacher must first have a firm grasp of his subject and, as he truly said: "the teacher must have a sympathetic understanding of the student; he must be able to exchange places with him; must not only know

but feel his point of view." George Stewart had this intuitive insight of the workings of a student's mind—and a wonderful control over his classes of medical students. There was nothing prosaic nor dull—no bluster; he knew when to be serious and when tolerant. Even so he was at times irascible and testy—not easy-going when the going was really easy but had always the support and approbation of the class.

The re-awakening of late of interest in the history of medicine and medical biography, did not strike our friend with the full force of a new idea; he had for years emphasized the importance of this, and due respect to tradition appealed to him. Becoming professor of surgery, he inherited the Saturday surgical clinic at Bellevue, a clinic which brought to him memories of Valentine Mott and Wood, of Van Buren, Hamilton and Sayre; echoes of Lister and MacCormac and other celebrities who had operated in that amphitheater and of Gorgas and Walter Reed and the host who had sat upon the benches. That the large general operative clinic occupies a less prominent place in the present-day curriculum he well understood and he was generally in accord with the modern methods, nevertheless he took just pride in this inheritance. The general style of his conduct of this clinic recalled the former days, linked him with the past and the past was never far below his horizon.

He prepared himself for each lecture and students were assigned an active part to take. His operative dexterity and shrewd and forceful running comments attracted large audiences and often he invited surgeons of note to address the class.

Doctor Stewart was one of the most influential and resourceful members of the medical board in advancing Bellevue's status as a great center of hospital public service and educational activity. The executive committee of the board is a representative intercollegiate committee with interdependent function in the conduct of educational

affairs of the hospital and in maintaining adequate cooperation with the City authorities.

The American Red Cross Base-Hospital Unit No. 1 was assigned to Bellevue in 1916. Doctor Stewart supervised the organization of the unit and under his leadership the medical and surgical staff and the enlisted men were recruited; the nursing staff, by the training school. Before the unit was taken over by the War Department, Doctor Stewart resigned. These were full years for everybody, full of the worries and anxieties of war, the trials and suffering of epidemic influenza, confusion and disruption of hospital services. There was plenty of active work for him on the Medical Advisory Board and the Headquarters Council of Defense.

When the American College of Surgeons was formed in 1913 Doctor Stewart became one of the charter members, the aims and purposes coinciding with his own. He was elected to membership in the American Surgical Association in 1915.

In the fall of 1918 George David Stewart was elected president of The New York Academy of Medicine, and when he was installed in office on January 2, 1919, he entered upon a new stage in his career and a new era in the history of the Academy began. He had just passed his fifty-sixth birthday and was in good health and vigor of body and mind. He followed Doctor Walter James in office who, under very trying conditions due to the war, had been a capable and farseeing administrator. George Stewart had a "haunting fear" of proving to be an unworthy successor; he was quite conscious of the responsibilities. He had already served as vice president for three years and was therefore well-informed regarding the urgent needs of the Academy and the various plans and projects for the future growth of the Academy, but he did not see that the inherent possibilities could be developed or reached very soon. Stewart had the unusual honor of being elected three times to the presidency but before the end of his first term he became convinced that the time to press on for the full com-

plete development was the present—so with characteristic determination he began the work.

A full account of this work written by one of the most active participants, Doctor D. Bryson Delavan is printed in the Bulletin of the Academy (2d series vol. 3, 1927, pp. 675-706). Doctor Delavan writes: "To Dr. George David Stewart" ". . . is due the credit of having inaugurated the effort which, carried on by him with unfaltering energy and courage through six arduous years, finally resulted in the Academy of Medicine as we have it today". It must be said here however, that no one more than Doctor Delavan himself stimulated, prodded, and encouraged Doctor Stewart in this great undertaking—for with all Stewart's tenacity he needed this.

The Academy is a lasting and superb monument to all those who, by their vision, energy and devotion accomplished it. Doctor Stewart did not give up his work in and for the Academy. He served on the Board of Trustees from the end of his presidency 1925 till his death and for a while as a member of the Public Health Relations Committee. It is scarcely possible to exaggerate the value of the service rendered The New York Academy of Medicine by Doctor George David Stewart.

The experience of these years had a perceptible effect on Stewart. It broadened him out; he became more public-minded; he addressed larger audiences and concerned himself more with the relation between medical education and public welfare. He became better known both locally and nationally. In 1927 when he was elected president of the American College of Surgeons his inaugural address was in the nature of an essay on "Idealism in Medicine." Again, on retiring from that office he spoke on "Aims and Ideals", a short sermon, more in the concrete, meditating on the way the College had lived up to *its* ideals and had striven to uphold surgical standards.

Meanwhile his interest and active participation in undergraduate teaching continued unabated, indeed he

maintained his college schedule in ward, class-room and clinic until the onset of his last illness.

As to "Aims and Ideals":—Doctor Stewart's own aims and purposes were not visionary. His conception of the principles of education for the medical student was clear and definite and practical. Teaching was his forte. When he retired from the presidency of the Academy of Medicine in 1925 he said: "It is to be hoped the Academy will never undertake the teaching work that properly belongs to the university," meaning undergraduate teaching for he was mostly interested in that. He pointed out that the medical profession may pursue its education after graduation in the academy or lyceum.

There was a good deal of discussion going on about who and what constitutes a specialist, and the very definite need of defining this term. In 1921 a system of postgraduate education and training in advanced surgery under a special faculty was elaborated and inaugurated at the University and Bellevue Hospital Medical College by members of Professor Stewart's corps of assistants and with his acquiescence though he took on little of the work himself. The course requires three hours of work daily for two years and a half and is limited to those who have completed surgical internships in accredited hospitals.

Five years ago the undergraduate students presented to the College a splendid testimonial of the admiration and esteem they felt for their teacher and friend. It is a portrait bust in bronze of Professor Stewart, the work of Mrs. Jules Leon Butensky, the talented sculptor, one of whose works, "Universal Peace", is in the Museum of Art in this city. The bronze (23x22x13 inches) presents a vivid, full-front-portrait, the face composed and set on futurity. It is the gift of the four classes, 1928, 1929, 1930, and 1931, and was presented in the lecture hall of Carnegie Laboratory, April 18, 1928—a gala and memorable occasion, mutually affecting and deeply significant. The bronze is a lasting proof to all alumni of the reciprocity in sentiment that existed between the students and Professor Stewart.

Doctor Stewart had an active surgical practice as consultant and a private clientele as well. He had many patients who were loyally devoted to him. The friendship that existed between Mr. George F. Baker and George David Stewart was a real attachment. Through sickness and health, through thick and thin, withstanding many tiffs, it was a friendship that remained steadfast and true. It was this high regard for Doctor Stewart that induced Mr. Baker to give one hundred thousand dollars toward the building of the new Academy of Medicine. He was the largest individual contributor, and beyond all this, such was Mr. Baker's admiration for the personal character of George Stewart and the merit of his accomplishments that he gave the sum of one million dollars to endow the George David Stewart Professorship of Surgery in New York University and Bellevue Hospital Medical College. So large a gift for one Chair is incomparable to anything in the history of medical schools in this country.

Reviewing the outstanding events of George Stewart's life, it is clear that the seafaring career was no place for him. If he had continued to follow the teaching profession he certainly should have reached a prominent place in that calling for it was so congenial to him.

Medicine however was his true sphere, and his decision to come to New York to enter it was of the greatest consequence in shaping his fortune. Had he gone to Edinburgh he would have studied under very notable teachers: William Turner in anatomy, William Rutherford in physiological chemistry and the institutes of medicine, William Greenfield in pathology, John Chien in surgery, T. Grainger Stewart in clinical medicine and Alexander Simpson (nephew of Sir James Y. Simpson) in midwifery. Probably he would have returned to Nova Scotia, which would have been a great gain to the medical profession there but a great loss here in this country.

Doctor Stewart's first contributions to surgical literature were made in 1895 when he presented two patients with

reports before the Society of Alumni of Bellevue Hospital, one, a boy he had operated upon five years previously when house surgeon in Bellevue, taking a bean from the right bronchus which became dislodged from the trachea during tracheotomy for its extraction (*Trans. Soc. Alumni Bell. Hosp.* 1894-95, p. 124, and *New York Med. Jour.* vol. 62, p. 26, July 6, 1895). He made two more clinical reports in 1898 before the same society. Then in 1905 he edited with annotations a translation of Prof. Oscar Schultze's Atlas and Text-Book of Topographic Anatomy (Phila., Saunders, 1905, quarto, 189 pp. 22 pl.), a book that "contains the essentials of regional anatomy and omits the exceptional or relatively unimportant details." He wrote for Bryant and Buck's American Practice of Surgery the articles on Torticollis (vol. 4), on the Surgery of the Pancreas and on the Surgery of the Liver, Gall-bladder and Biliary Passages (vol. 8) published in 1908 and 1911 respectively.

In 1914 in association with Dr. William H. Barber he reported an experimental study of "Hydronephrosis" (*Ann. Surg.* vol. 60, p. 723, 1914) and with the same collaborator on "Gastric Hypermotility" (*Jour. A.M.A.* vol. 73, p. 1817, 1919) and "Further Observations upon Reflex Gastric Hypermotility" (*Proc. Soc. Exp. Biol. and Med.*, vol. 17, p. 155, 1919-20). Between 1905 and 1922 he published seventeen articles on clinical surgery, eight of them in 1908. His writing is distinguished by conciseness and simplicity. He had not a high opinion of much that appears in either medical or surgical literature. Besides these and several formal addresses his writing was in biographical, historical or poetical form. To the students' year-book at the College called the "Bellevue Violet" he was often a contributor. One of his best articles is a reminiscent account of "The 'Saturday Clinic.'" His tribute to "Doctor Herman Haubold", his classmate and friend of long standing, is very fine—a just and loyal estimate of Haubold which exemplifies the emotional sympathy that characterized them both.

George Stewart had a great fondness for things outside his profession. He believed that a man who has this is likely to have a much more interesting life and perhaps not be the worse doctor. He was a devoted lover of Robert Burns, not because of his race but for his poetry. He was a member of the Robert Burns Society of New York and ten years ago he became president and made the address at the banquet on the anniversary of the birthday of "Scotia's Immortal Bard" amid toasts and song and skirl of bagpipes.

Stewart had a poetic fancy himself and composed rhymes and verses of considerable merit both serious and gay. Two of these are of piscatorial origin: "The Clicking of the Reel" and "Don't Cut the String" for Stewart was expert at salmon fishing—his greatest sport. For a number of years he fished the waters of the Quebec Labrador and several men of prominence in financial and industrial life were his companions very often—the most notable, his truly devoted friend the late Mr. George F. Baker. The incident that inspired "Don't Cut the String" happened with the late James J. Hill of railroad fame, a man of great pluck and tenacity. Perhaps the range of Doctor Stewart's interest, his sentiment and humor may be shown by some other titles: "The Road", "Pardon", "The Tired Doctor's Prayer", "Again", "On Receiving a Beautiful Cane from Paris, the Handle Contributed by a Rhinoceros", "Bill McKeever's Soirée". These are published in the proceedings of the Charaka Club, 1931.

His reading covered a wide range of subjects. At the age of sixty-four he began the study of Italian and pursued it so assiduously and enthusiastically that within three years he was able to speak the language fluently and he enjoyed its classics in the mother tongue.

He joined the Society of Alumni of Bellevue Hospital in 1890 and then the Hospital Graduates' Club where those other traits that distinguished George Stewart and that were so attractive in him, began to show, his congeniality, his humor and heartiness and fraternal spirit. It was not long before he had acquired a reputation as a good

raconteur; the wit and point of his Scottish stories and "in the Doric" as he called it, his easy, colloquial style made him very popular. He really enjoyed the exercise of this rare talent and put a good deal of thought and energy into it. This became rather exacting at times, for his speeches, even his extemporaneous speeches, were practically all prepared. He has been known to have three speeches in his pocket at the same time and to decide which to deliver when he had sized-up his audience. He excelled too, as a toast-master and often put life into what otherwise was a dull party. He was hard to match as an after-dinner speaker.

Some time ago in talking about the life and character of the general practitioner as a guide and counsellor and his status at the present day, it was remarked that with all the advances in medical science and the changes in practice that he had seen, the personal relation of doctor and patient remained the same, based on the same ethical standards and trust in each other, and he said: "I think I would have made a good doctor," thinking of Doctor William MacLure in "Beside the Bonnie Brier Bush," whom he often quoted, and of his own preceptor William Macdonald. Doctor Stewart, a leader in the profession, in his every-day work and practice lived up strictly to these principles. Punctilious sometimes in non-essentials yet his friends and associates always knew where he stood in things that mattered. He had the very able and loyal support of his staff and he was happy in the knowledge of it. His successor in the professorship of surgery is his able and devoted colleague for many years, Doctor Arthur Mullin Wright.

His presidency of the Academy of Medicine is a notable landmark in the life of Doctor Stewart; it had a marked influence upon himself and his administration of that office was of vital importance in the development of the new Academy, and will never be forgotten.

In 1921 New York University conferred upon him the degree of LL.D., and in 1929 the same degree was given him by Dalhousie University in Nova Scotia.

Mrs. Stewart survives her distinguished husband together with four daughters and five grandchildren.

George David Stewart by his professional attainments, his force as a teacher, his high ideals, the quality of his personality, occupied a place of international prominence and importance, not only in the minds but in the hearts of his fellows in the brotherhood of doctors.

It will be long before we see his counterpart.

ROBERT JAMES CARLISLE

COMMITTEE ON FELLOWSHIP

The Committee on Fellowship held a meeting on September 19th to continue its work of studying the applications of existing Fellows of the Academy for classification as specialists. The names considered at this meeting will not be acted upon by the Council of the Academy until October 25th.

There are nearly 500 names to be passed upon and many applications have not been considered on account of the need of establishing precedents, the interpretation of the By-Laws, and the occasional absence of a member of the Committee. The Committee has therefore asked me to have this notice inserted in the Bulletin so that those Fellows whose names have not yet been considered will not be concerned by the delay.

EDWARD L. KEYES, *Chairman*

Committee on Fellowship

FELLOWS DESIGNATED AS SPECIALISTS

The following list consists only of those Fellows of the Academy who have been accepted by the Committee on Fellowship at the meeting of September 19, for designation as specialist in their various fields and await the approval of the Council.

DERMATOLOGY AND SYPHILOLOGY

George Morris Lewis

SURGERY

Milton R. Bookman

Preston A. Wade

NEUROLOGY AND PSYCHIATRY

Samuel Bernard Wortis

PEDIATRICS

Camille Kereszturi

Sidney D. Leader

OPHTHALMOLOGY

Norton DeL. L. Fletcher

J. Flandreau Van Fleet

OTOLARYNGOLOGY

H. Griffin Bullwinkel

Frank C. Carr

H. Clifton Luke

Gervais Ward McAuliffe

Charles Osgood

William A. Randel

INTERNAL MEDICINE

Helen Baldwin

Frank Terry Brooks

Irving S. Wright

UROLOGY

George A. Cashman

Victor C. Pedersen

OBSTETRICS AND GYNECOLOGY

Ralph A. Hurd

Harry P. Mencken

Nelson B. Sackett

RADIOLOGY

John J. Masterson

Henry K. Taylor

ORTHOPEDIC SURGERY

Samuel W. Boorstein

RECENT ACCESSIONS TO THE LIBRARY

Armstrong, C. P. 660 runaway boys.

Boston, Badger, [1932], 208 p.

Balyeat, R. M. Migraine; diagnosis and treatment.

Phil., Lippincott, [1933], 242 p.

Barclay, A. E. The digestive tract.

Cambridge [Eng.], University Press, 1933, 395 p.

- Bilancioni, G. *Prime linee di una patologia dello sviluppo, sua importanza in oto-rino-laringologia.*
Roma, Pozzi, [1932], 2 v. in 1.
- British spas and health resorts . . . Prepared . . . by R. Fortescue Fox.
London, Churchill, [1933], 195 p.
- Burkitt, M. C. *The old stone age.*
Cambridge [Eng.], University press, 1933, 251 p.
- Drewitt, G. F. D. *The life of Edward Jenner . . . 2. ed.*
London, Longmans, 1933, 151 p.
- Eggleston, C. *Essentials of prescription writing 5. ed.*
Phil., Saunders, 1933, 155 p.
- Field, A. W. *Protection of women and children in Soviet Russia.*
New York, Dutton, [1933], 241 p.
- Gadelius, B. E. *Human mentality in the light of psychiatric experience.*
Copenhagen, Levin, 1933, 620 p.
- Gellhorn, G. *Gynecology for nurses. 2. ed.*
Phil., Saunders, 1933, 294 p.
- Gillespie, R. D. *The mind in daily life.*
London, Methuen, [1932], 288 p.
- Goldstein, M. A. *Problems of the deaf.*
St. Louis, Laryngoscope Press, 1933, 580 p.
- Griffith, J. P. C. & Mitchell, A. C. *The diseases of infants and children.*
[3. ed].
Phil., Saunders, 1933, 1155 p.
- Hobhouse, (Mrs.) R. (Waugh). *Life of Christian Samuel Hahnemann.*
London, Daniel, [1933], 288 p.
- Hoff, H. & Schönbauer, L. *Hirnehirurgie; Erfahrungen und Resultate.*
Leipzig, Deuticke, 1933, 472 p.
- Howell, W. H. *A text-book of physiology. 12. ed.*
Phil., Saunders, 1933, 1132 p.
- Hunt, T. C. *The common causes of chronic indigestion.*
Balt., Wood, 1933, 341 p.
- Lagrange, H. & Delthil, S. *Les conjonctivites de nature anaphylactique.*
Paris, Doin, 1932, 70 p.
- Lewis, (Sir) T. *Clinical disorders of the heart beat. 7. ed.*
London, Shaw, 1933, 127 p.
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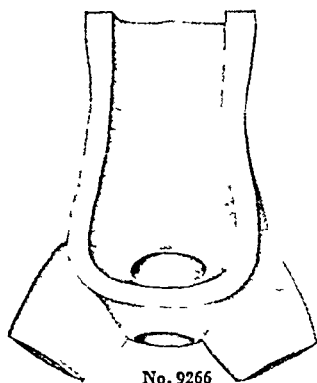
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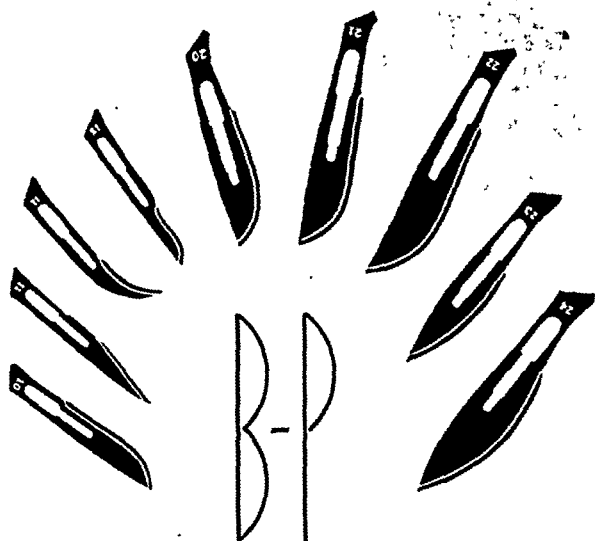
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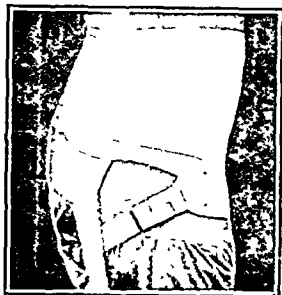
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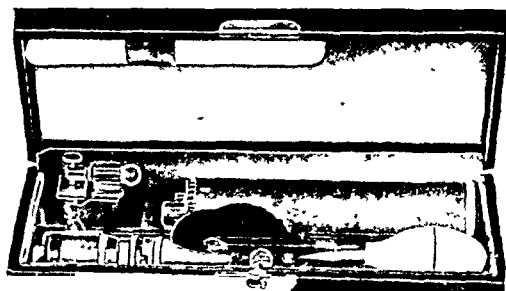
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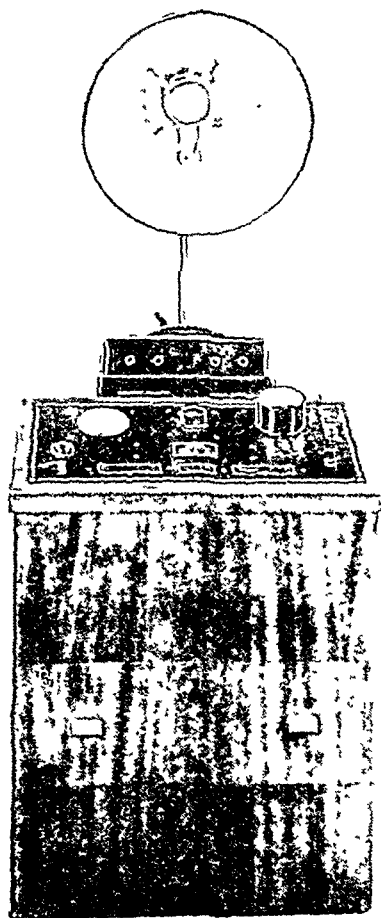
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SEPTEMBER, 1933

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VOL. IX, No. 9

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CONTENTS

Diabetes Mellitus — Problems of Present Day Treatment, Herman O. Mosenthal.....	505
Discussion, Public Health Problems, Charles Bolduan...	523
Hereditv and Prevention, Elliott P. Joslin.....	532
Clinical Phases, Nellis B. Foster.....	538
Recent Trends in Diabetes Mortality, Louis I. Dublin, Ph.D.....	540
Recent Accessions to the Library.....	547
Deaths of Fellows of the Academy.....	549

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BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

VOL. IX

SEPTEMBER, 1933

No. 9

DIABETES MELLITUS—PROBLEMS OF PRESENT DAY TREATMENT*

HERMAN O. MOSENTHAL

We meet this evening to honor the name of Hermann M. Biggs, whose tireless and successful efforts in behalf of this community were carried out as an officer of the Department of Health of New York City.

It is most appropriate that this same organization, at the suggestion of its Director of Health Education, Dr. Charles F. Bolduan, has initiated the present study of the prevention and treatment of diabetes mellitus in New York City. For the past year, a sub-committee of the Committee on Public Health Relations at the New York Academy of Medicine has been actively engaged in investigating this subject and it is to the discussions of this group, of which I had the honor of being a member, that I am indebted for many of the ideas expressed here.

Doctors Emerson and Bolduan have furnished the charts concerning the mortality statistics of New York City, and Doctor Dublin the data in regard to the causes of diabetes deaths and many other facts.

* *Hermann Michael Biggs Memorial Lecture, delivered at The New York Academy of Medicine, April 6, 1933.*

The main points to which Health Commissioner Wynne and Dr. Bolduan called the attention of The New York Academy of Medicine, are that at the present time about two thousand diabetes deaths are registered annually in New York City, that the diabetes death rate is about fifty per cent higher than it was only twenty years ago, and that these facts call for some remedial effort.

STATISTICS

Chart 1 shows that for persons of both sexes the diabetes death rate in New York City has risen from 2.1 per hundred thousand of population in 1866 to 29.2 in 1932. The total number of deaths has risen from 15 in 1866 to 2,116 in 1932. A distinct rise in the number of diabetes deaths is occurring not only in New York City but throughout the United States as shown by the mortality statistics from other cities.

Chart 1

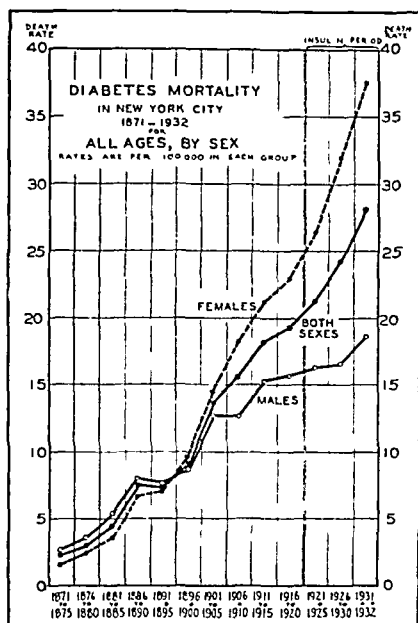
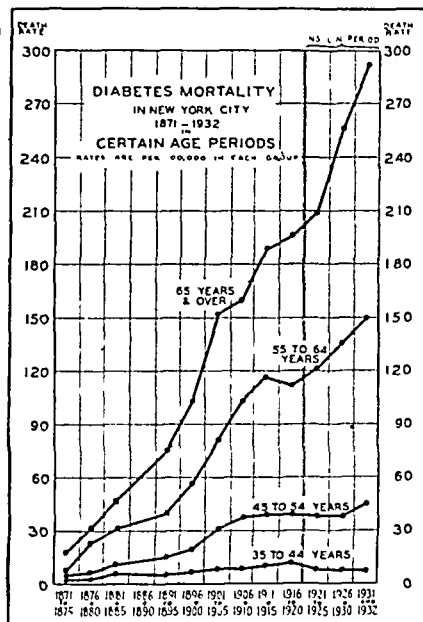


Chart 2



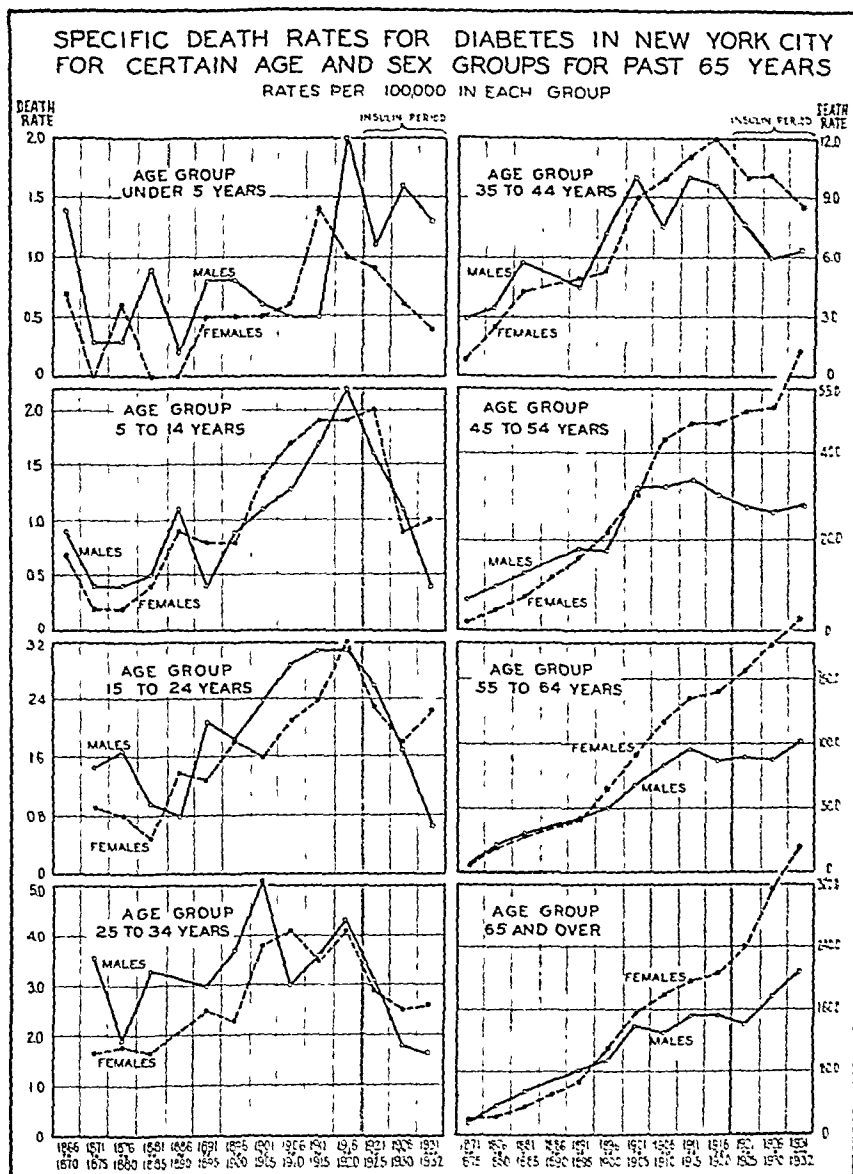
Up to 1905 the death rate for males and for females was almost the same, but thereafter the rates for the two sexes diverge—that for the females rising more sharply so that by 1932 the rate for females was about double that for males. The same change in trend about 1900 is noted in the individual age groups as will be shown subsequently.

In analyzing the mortality statistics it should be made clear that the term “diabetes death rate” more nearly represents the incidence of diabetes mellitus than the actual diabetes death rate, since diabetes is usually, though not always, given preference as the cause of death which is officially recorded when more than one condition is mentioned on the death certificate.

The rising scale of the mortality rate in the graphs of Chart 3 gives ample evidence of the prevalence of diabetes in the older age periods. There are certain additional facts to be deduced from Charts 2 and 3. A change in the trend of the mortality rate occurs in nearly all age groups about 1900. The most probable explanation of this fact is the introduction of the international classification of the causes of death by the Board of Health in 1901; this system of recording deaths has been followed from that time on and consequently the statistics in regard to New York City are only strictly comparable from year to year since 1901.

After 1920 there is a marked improvement in the death rate in females under 45 and in males under 65 years of age (Chart 3). This may be definitely attributed to the effective use of insulin. In women over 45 (Chart 3) the rise in the death rate continues its previous upward trend in spite of insulin, while in men this is true only in the age group of 65 and over. This increase in diabetes deaths of older females is so great that it outweighs the favorable influence of insulin in the other age and sex groups and results in a distinct rise of the diabetes mortality as a whole. It is true that physical examinations are more frequent and more thorough than they were a few years ago. This produces an apparent rise of the diabetes mortality rate.

Chart 3



The data concerning this disease, obtained from twenty-four hospitals in New York City for the year 1931 by Dr. Alice Paulsen, show that much remains to be accomplished in this direction; of 1,617 cases of diabetes treated in these institutions, 318 or 19 per cent of the total, were diagnosed only after admission to the wards for the treatment of some other ailment. The increased number of applications for life insurance by women and their more frequent participation in business activities, both entailing medical examinations, undoubtedly are factors which add to the recorded prevalence of diabetes in this sex during recent years.

There has been a distinct aging of the population in New York City. In 1900 the age group 45 to 64 was 13.1 per cent of the entire population, while in 1930 this group constituted 17.3 per cent of the entire population. In other words, the proportion of this group increased over 32 per cent. Similarly, the age group 65 and over, increased from 2.8 per cent in 1900 to 3.8 per cent in 1930. This is an increase of more than 35 per cent in the proportion of this age group. These facts have a distinct bearing on the interpretation of the mortality statistics. Drolet (J. A. M. A., March 11, 1933, Vol. 100, pp. 733), computes that in the light of these figures the diabetic death rate for New York City in the thirty years from 1900 to 1930, rose only 58 per cent whereas according to the crude death rate not adjusted to the aging of the population or the growth of New York City, it increased nearly 100 per cent. While these statistical facts lessen the significance which should be attached to the rise in the incidence of diabetes, they do not do away with diabetes as a health problem.

The use of insulin has effected great changes in the clinical course of diabetes. According to the statistics of Louis I. Dublin (data of Dr. Elliott P. Joslin analyzed by the Metropolitan Life Insurance Company) there is a drop from 1900 to 1930 of about 50 per cent in the diabetes deaths due to coma and a rise of about 35 per cent in those attributed to cardiovascular conditions, renal disease and gangrene.

*Changes in the Causes of Death of Diabetics.
Figures as Percentage of All Diabetes Deaths
Experience of Elliott P. Joslin*

	1898-1914	1926-1930
Coma	60.8	11.4
Cardiovascular, renal and gangrene	15.5	49.6
All other causes.....	23.7	39.0

It is certain that Joslin's results are probably more favorable than those of any other clinic, but even they do not achieve the ideal of perfect control, that is, the entire elimination of diabetic coma. The carelessness of patients and the disregard of diabetes during surgical and other emergencies are mainly responsible for the persistence of a considerable number of coma deaths. The increasing frequency of arteriosclerosis and its complications in the diabetics who live to grow old, thanks to insulin, is well shown in these figures. In our experience the diabetic who has maintained a sugar-free urine almost constantly, will not develop these much-dreaded complications. However, the determination of exactly what factors are concerned in the causation of arterial changes and their sequelae, is one of the most urgent problems in our effort to check diabetes. Only when this subject is completely elucidated will it be possible to state with assurance, what can now be only tentatively claimed, namely, that the complete and constant control of diabetes virtually amounts to a cure, even if the disease itself cannot be eradicated.

TREATMENT

The principles of the treatment of diabetes are established on as sound a basis as is possible with the present-day knowledge of normal and pathological carbohydrate metabolism in human beings. The accepted criteria for successful treatment are:—the constant maintenance of normal nutrition, blood sugar and plasma cholesterol, and a urine free from sugar in the clinical sense. These are very high standards for it is debatable whether or not the

unwavering adherence to natural levels of blood glucose and cholesterol is very significant. The remedial measures, however, used to achieve these ideal objectives of therapy, leave much to be desired.

Within the short period of one generation, clinicians have participated in controversies concerning the exclusive administration to diabetics of diets that were, physiologically speaking, distinctly bizarre. I refer to the starvation and high fat systems of feeding and to the more recent advocacy of excessively large amounts of starch. While extreme diets of this sort meet certain emergencies, they cannot be used continuously without grave consequence. The routine food intake of the diabetic must be considered suitable in the measure in which it meets the vital needs and the personal tastes of the patient.

Radical changes in the diet may be required for many reasons, such as: excessive loss or gain in weight, variations in the carbohydrate tolerance, shifting in the level of the blood sugar and cholesterol, an aversion to, or a strong desire for certain foods, the demands incident to surgical intervention or infectious diseases. Essential alterations in the diet should be made only after thoughtful study; carried out by the patient without the aid of medical advice they entail an unwarranted responsibility. For this, as well as for other reasons to be mentioned subsequently, more frequent medical counsel and less self-treatment than is advocated in many quarters, seem desirable in the routine care of diabetic patients.

Many physicians, nurses and patients are openly scornful of the use of qualitative as opposed to quantitative, i.e., weighed diets. Patients with this point of view can be accommodated without distressing or inconveniencing any one except themselves, but the physicians and nurses who insist on accurately weighed and meticulously calculated diets for all cases, may spread discontent and tend to impose an unnecessary burden on many already afflicted with a permanent handicap. Weighed diets are undoubtedly

necessary for the satisfactory control of many cases of diabetes, but eating by grams should be avoided whenever possible since the attendant ceremony and formality tend to provoke an undue nervous tension. A rational dietary, without sugar or sweets, in which the amounts of food with a high carbohydrate content are approximated by household measures, may often be advisedly carried out even when the patient is using insulin. But again, the responsibility should rest entirely with the physician who should be the arbiter of what is most advantageous in each case.

Finally, as regards the self-regulation of the diabetic patient. This disease when it has once appeared is a life-long problem and its treatment if it is allowed to become a full-time occupation to the patient, tends to prove irksome and to result in nervous strain that affects the carbohydrate tolerance unfavorably. The daily urine analysis of a twenty-four hour specimen by the patient is not advisable. In the first place, the analyses of several single specimens usually yield more valuable information for the regulation of treatment, since this method of examination will determine in which meal the carbohydrates are in excess, or which dose of insulin is insufficient; in the second place, the collection of a complete twenty-four hour specimen is usually accomplished only with some discomfort and sacrifice; in the third place, the analysis of the patient's urine by himself or one of his family, is likely to be associated with considerable introspective doubt.

Taking all these facts into consideration, it is suggested that the amount of responsibility for self-examination and treatment to be asked of each patient, should be reviewed with great care. Many patients are unable to be objective about their condition and are rendered unhappy by self-investigation and regulation. The patient's welfare is the responsibility of the physician and he should discharge this trust in full without unnecessarily shifting any obligations on to the patient, whose carbohydrate tolerance is so often sensitive to nerve strain.

The family physician should be the hub of the wheel about which routine management of the diabetic patient centers. Post-graduate medical instruction in the simple, direct, effective treatment of diabetes should be constantly available in every large city and thus make it possible for every practitioner to review the principles and methods of therapy at all times. Every hospital should have its resources so organized that the medical, the surgical and the nursing staffs, the laboratories and the diet kitchen are capable of meeting all diabetic problems and emergencies. The occurrence of coma, of a severe infectious disease, or other complication in a diabetic patient, may call for almost hourly observation and therapeutic adjustment, and is therefore much more satisfactorily controlled in a properly equipped institution than by a single physician in the patient's home. While the routine treatment of the diabetic should be carried out by the family physician, additional medical advice should be sought by him when the ideal objectives of treatment are not maintained, since a deviation from them for a few years or even a few months will result in irreparable damage.

ETIOLOGY

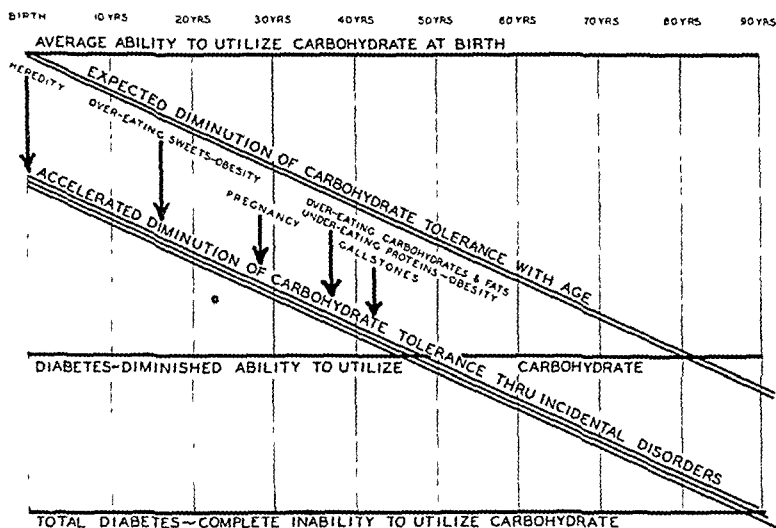
The causes of diabetes must be thoroughly understood if reasonable and effective measures are to be carried out for its prevention and cure. The diagnostic criteria and the causes of diabetes have not been satisfactorily established and consequently steps intended to control this disease cannot be advocated with complete confidence. The enforcement of guides to health, whose validity is not fully established, may result in harm as well as good. The suggestion is made that all the factors concerned in the causation of diabetes should be subjected to thorough scrutiny and further study before preventive measures based upon them are urged for general adoption. A brief review of the situation from the angle bearing on the preventive and active treatment of diabetes is important.

Definition and diagnosis. Diabetes mellitus may be defined as a disturbance consequent upon a diminished ability of the body to utilize glucose. This is a very brief and simple definition which is certainly correct as far as it goes but it is open to criticism since it does not include the cause of the disease. The diminished carbohydrate tolerance is usually attributed to changes in the pancreas. Postmortem examinations often reveal such lesions but there are so many instances in which the pathologist fails to demonstrate any abnormality that some skepticism concerning the validity of the unitarian doctrine of the pancreatic etiology of diabetes is justified. The unnatural activities of many glands besides the pancreas, such as the adrenal, the thyroid, the liver, the pituitary and numerous others, some partially explored, others scarcely thought of, play a role in the assimilation and the oxidation of glucose. The fact that insulin remedies the situation does not warrant our regarding this as a purely substitutional therapy for pancreatic deficiency because its effects may be in part compensatory for an altered activity of other glands. When we speak of diabetes, therefore, we are discussing a diminished tolerance for glucose which, according to some is invariably due to pancreatic disease, and according to others, to extra-pancreatic disturbances as well.

The fact that diabetes is thought of primarily as a disease characterized by an impairment of carbohydrate tolerance, is demonstrated by the nature of the only diagnostic measure for diabetes in common use today, known as the sugar, or glucose, or carbohydrate, tolerance test. This test concerns itself solely with the ability of the body to utilize carbohydrates. Every case of diabetes exhibits a diminished glucose tolerance, but every instance of diminished glucose tolerance is not a case of diabetes. This shows that while our definition of diabetes is the best possible at the present time, it is not an exact description of the disease "diabetes" since there are no pathognomonic signs by which it can be identified. Improvement of the present-day treatment must be based on a clarification of these questions. The possibility that not one but several

Chart 4

THE INHERENT TENDENCY TO DIABETES IN HUMAN BEINGS AND FACTORS THAT ACCENTUATE IT



different forms of abnormal sugar digestion are included under the name "diabetes", is shown by the great and unexpected variations in its onset and in its clinical course.

Though diabetes cannot be accurately described, a consideration of the influences which favor its incidence is in order. The definition of diabetes is graphically presented in Chart 4.

There are three horizontal lines indicating: first, normal carbohydrate tolerance; second, a degree of diminished carbohydrate tolerance at which point diabetes is thought to begin; and third, the lowest line designed to represent the complete loss of carbohydrate tolerance, which when it exists in human beings, is called total diabetes. On these lines have been plotted the various influences that may in the course of a lifetime be expected to affect the carbohydrate tolerance.

Degenerative processes, arteriosclerosis. With advancing years degenerative processes manifest themselves necessarily in the glands, because of the natural wear and tear of the tissues, or as the result of arteriosclerosis. This accounts for the diminution of carbohydrate tolerance, that is, the mild diabetes of the aged. The falling line in Chart 4, crossing the level of curtailment of carbohydrate tolerance indicative of diabetes at about 80 years of age, is a suggestion of the average course of events in human existence. Some persons will give evidence of diabetes from this cause at 60, 50 or even 40 years of age.

Although this line is a purely arbitrary one, it is undeniable that a constant diminution of carbohydrate tolerance and a tendency to diabetes develops in practically all persons as the result of inevitable degenerative changes. We are accustomed to regard with equanimity rising blood pressure, thinning and greying of the hair, diminution of physical vigor and other marks of deterioration in older individuals, because they are considered the inevitable physiological processes of the passing years. There is every reason to believe that the organs which control the metabolism of glucose are affected in the same way. Thus the problem of the prevention of diabetes from this cause resolves itself into checking the diseases of old age, which is a general question for solution and is not to be specifically engaged in by those who are interested in perfecting means for the control of diabetes.

Heredity. Heredity is believed to be a factor in about twenty per cent of cases of diabetes. According to some careful investigations, heredity in diabetes appears to follow the Mendelian law. Insulin has enabled youthful diabetic patients to attain maturity and to become fathers and mothers, and has made it possible for the diabetic woman to carry through pregnancies successfully. Because diabetics, since the introduction of insulin, can have children in the same proportion as normal persons, it is evident that the hereditary factor will result in a rising incidence of diabetes. The bearing of an inherited diabetic

tendency on the carbohydrate tolerance is indicated in Chart 4. The degree and the rapidity of involvement of the carbohydrate tolerance indicated by the lines in Chart 4, will vary a great deal from case to case, and it must be understood that in its present form this graph expresses only tendencies, and not hard and fast curves of mathematical precision. The solution of controlling heredity as a cause for diabetes is according to all present day humanistic principles, not a direct one but a policy of patience that waits on the discovery of a cure for diabetes.

Pregnancy. Pregnancy has a marked influence upon carbohydrate tolerance and diabetes. Renal glycosuria, a permeability of the kidney to glucose below the normal level of blood sugar, is often found in pregnant women. This is a harmless anomaly, not a disturbance of the carbohydrate tolerance, and is not related to diabetes in any way. The consensus of experience is that during pregnancy, diabetes may develop, that latent diabetes will be accentuated and that an existing diabetes will be aggravated. After pregnancy, carbohydrate tolerance may return to its antepartum efficiency or it may be permanently impaired. Pregnancy may therefore be considered as an immediate cause for diabetes in some instances.

Pregnancy may damage the carbohydrate tolerance but not to a sufficient degree to cause the immediate appearance of diabetes. The progressive diminution of carbohydrate tolerance expected with age would consequently reach the diabetic level at an earlier period of life in the woman who has borne children than in the one who has not. This idea is expressed in Chart 4. This theory, which would be a large factor in accounting for the high incidence of diabetes in females over 45, could be either proved or disproved if comparative data were available of women who have borne children and of those who have not.

The relation of pregnancy to the diabetes problem, therefore, consists in the avoidance of strain or impairment of the carbohydrate tolerance during puerperium and child-

birth. How this is to be accomplished is not known and it is a matter of further investigation to determine what can be done.

Gall stones. Gall stones are often regarded as a cause for diabetes. A stoppage of the common duct by a calculus results in the forcing of bile into the pancreatic tissue and a consequent injury to the Islands of Langerhans. In addition, cholecystitis will affect the carbohydrate tolerance adversely as is the case with any infection, and it will accelerate degenerative processes and arteriosclerosis, thus favoring the development of diabetes. The interrelation between gall stones, diabetes, cholesterol metabolism, obesity and pregnancy is so complicated that it is impossible to explain it satisfactorily and most phases of this problem are awaiting an intelligent solution. Since gall stones are more common in women of forty years or over, than in men, another factor besides pregnancy is indicated to explain the increasing incidence of diabetes in females over 45 years of age.

The management of gall stones and their complications with a view to effective prevention of damage to the carbohydrate tolerance, has thus far received scant attention and it would be futile to speculate on this matter because there is a lack of precise knowledge of this subject.

Diet - obesity. Faulty habits of diet have been blamed for the increasing incidence of diabetes. Improper hygiene not only in regard to eating but also in other directions, especially lack of exercise and sedentary habits, has resulted in an increasing occurrence and degree of obesity which, according to the statistical evidence, is associated with a rising mortality rate in cardiac, arterial and renal diseases, in cancer and in diabetes. Overweight conditions should therefore be prevented if possible. Every degenerative disease gives evidence that obesity has a very adverse influence on the life of human beings. The underweight individual apparently has a better chance to live long than the so-called normal or ideal weight person. This really should be thought of as average weight of apparently healthy indi-

viduals, which implies something different than the term normal or ideal weight. The weight standards for the best health in vogue at present are apparently too high. Obesity evidently accelerates degenerative changes, that is, deterioration of the tissues and arteriosclerosis, which as previously suggested, is one of the main processes concerned in the impairment of carbohydrate tolerance resulting in diabetes.

Nutrition is the difference between the amount of food consumed and the quantity utilized by physical effort. The storage of fat, resulting in obesity, because of a lack of balance of these factors is not synonymous with overeating of fats, starches and sugars though this is often taken for granted. Obesity is a signal that the tissues have been damaged and that the body is being strained. The first comes about through fatty infiltration of the tissues, the second is the result of the presence of an excess of body bulk which must be kept warm and which must be carried about. The two handicaps call for separate evaluation and different treatment in each individual. There is a distinct hazard for the obese subject if these two elements in the situation are not given individual consideration. Consequently, propaganda that are made concerning the dangers of obesity should be confined to the necessity and the means for the prevention of obesity, and the control of moderate gains in weight. The reduction of weight for the markedly obese individual, on the other hand, should always be carried out under medical supervision and should not be undertaken with the sole guidance of printed leaflets and radio talks.

The overeating of sugars, starches and fats will result in obesity. The high consumption of sugars and starches is often stated to be a cause of diabetes, independently of the effect they exert through the production of obesity. The charts demonstrating the parallelism between sugar consumption and the incidence of diabetes in different countries have been widely circularized. Recent studies in normal persons and in diabetic individuals show that the

habitual eating of considerable quantities of sugars and starches improves rather than impairs the carbohydrate tolerance, provided glycosuria is not present. The conclusion therefore is warranted that the excessive use of starches and sugars favors the occurrence of diabetes indirectly through obesity, but that the consumption of starches and sugars, even in large amounts, is not a cause of diabetes. In fact, the available evidence indicates that it improves the sugar tolerance. Glycosurias, occurring after high starch diets, point to a previously existing deficiency of carbohydrate tolerance, that is, a tendency to diabetes. According to these facts there is no reason for limiting the consumption of sugars and starches except insofar as these classes of foods will result in obesity.

The proportion of proteins, especially meats, in the average diet is constantly diminishing. This implies that carbohydrates and fats replace the proteins and tend to cause obesity. Aside from this aspect which has already been discussed, there is the danger that a deficient protein ration will result in tissue degeneration. Secondary anemia, edema and nephritis have been produced by such diets. It is very probable that an insufficient supply of animal proteins continued for a long time entails degeneration of various organs and arteriosclerosis that will impair carbohydrate tolerance and accentuate any diabetic tendencies. An educational campaign for the proper use of animal proteins in the routine diet is urgently necessary.

Internal secretions. The most significant factor in the control of diabetes lies in the functions of the glands of internal secretion. Except for the use of insulin which has been discussed, there are no practical aids available for general application at present. Consequently, this important phase of the etiology of diabetes is omitted.

SUMMARY AND CONCLUSIONS

Organization of resources in medicine. Problems and questions without end have been touched on in this lecture.

For the promotion of their solution it is proposed that associations of metabolism clinics be organized in various cities. In New York such an association might well be under the auspices of the Academy of Medicine. The activities of such a section within the Academy should not be confined to diabetes as there are too many other diseases to warrant the creation of a group solely for the study of diabetes, and by implication to segregate a certain number of physicians and specialists in diabetes. Many of us have believed for some time that applied physiology or functional pathology, or pathological physiology, is as important as anatomical pathology for the understanding of disease. The medical profession should recognize this by creating a younger brother of the pathological society. The phrase, "diseases of metabolism", is in common use but poorly defined; possibly it may be described as that group of disturbances depending upon functional pathology, such as diabetes, hypertension, etc. An association of metabolism clinics should bring about a very desirable unification and increased effectiveness of the present sporadic efforts in post-graduate teaching, gathering statistics, carrying out research, improving treatment and initiating preventive measures not only for diabetes mellitus but also for other diseases of equal, if not greater importance, from the point of view of public health.

Rising diabetes mortality rate. Mortality statistics reflect the incidence of diabetes rather than diabetes as a cause of death. The aging of the population favors the development of diabetes. The more frequent and more thorough physical examinations during recent years, especially of women, have revealed many cases of diabetes that would otherwise not have been discovered. The use of insulin has prolonged the life expectancy of diabetic subjects so that they should, under ideal conditions of treatment, not succumb to diabetes but to the same causes of death as persons not afflicted with diabetes. All these reasons do not suffice to account in full for the rapid advance in the total incidence of diabetes, nor particularly in women over 45 years of age.

Prevention of diabetes. It is not feasible to accomplish a great deal in this direction until more complete and reliable information is obtained concerning the onset of diabetes at different ages and in the two sexes, and concerning the etiology of diabetes. The Board of Health can throw light on the problem of diabetes incidence by collecting the results of physical examinations from various sources and possibly by requesting reports of the discovery of diabetes by practitioners. The part played by heredity, menopause, pregnancy, gall stones, glandular activities, nervous disorders and other possible causes of diabetes, calls for further investigation before popular statements can be finally and authoritatively made as to the influence these factors exert upon the carbohydrate tolerance in human beings. An educational campaign concerning the eating of meats, fats and carbohydrates, and the dangers of obesity is desirable and warranted by the available facts.

Diabetics should not die of diabetes. The methods and objectives of diabetes treatment available today are adequate to accomplish this. They are not as universally applied as they should be. In order to bring this about the treatment should be simplified and be kept free from all unnecessary formalities; more responsibility should be assumed by the physician and less by the patient than is often advocated; opportunities for acquiring the facts concerning the routine management of diabetes should always be available for the practitioner of medicine in the larger cities; every hospital should have its resources so organized that the medical, the surgical and the nursing staffs, the laboratories and the diet kitchens are capable of meeting all diabetic problems and emergencies; every serious illness in a diabetic patient calls for hospitalization and not for home treatment; the physician should not hesitate about insisting on the constant maintenance of the ideal standards of treatment in all his cases, for a deviation from them, within a few months or years, will result in irreparable damage.

DISCUSSION: PUBLIC HEALTH PROBLEMS

CHARLES BOLDUAN

It is indeed a pleasure to be privileged to discuss Dr. Mosenthal's very instructive paper on diabetes. His analysis of the nature of the disease is most helpful, for it brings out the various possible causative factors which must receive attention in any program for control of diabetes. From what Dr. Mosenthal has said it will be clear that the problem is by no means simple.

An examination of the various text books on the Practice of Medicine published during the first half of the 19th century shows clearly why diabetes was not readily recognized. The disease is generally classed among the disorders of the urinary system. Among the symptoms, the excretion of large amounts of urine is always given a prominent place. Reference is made to cases in which there is no sugar in the urine, and to the presence of albumin in some of these cases. It is suggested that this condition represents an early stage of diabetes. So far as the presence of sugar in the urine is concerned, the earlier text books (e.g., Cullen in 1822 and Dunglison in 1842) speak only of the sweet taste of the urine, and of the crystals of sugar which form when the urine is evaporated. Some text books of this period also refer to the fact that the urine ferments on the addition of yeast. It is noteworthy that all the older texts state that diabetes is about twice as common in males as it is in females.

Texts published about the middle of the 19th century often mention Moore's test, or the brown color produced on boiling the urine with caustic potash. In George B. Wood's Practice of Medicine, Second Edition, published in 1849 a foot note refers to Moore's and to Trommer's tests, though the body of the text mentions merely the sweet taste and the formation of sugar crystals on evaporation. Tanner's text book (1858) mentions Trommer's and several other chemical tests for sugar. John King in his book "Chronic Diseases", published in 1867 mentions Parry's

modification of Fehling's test. Niemeyer's Practice of Medicine (Translation, New York, 1869) describes Trommer's, Moore's and Fehling's tests. The last named is employed for the quantitative determination of sugar, though judging by the text books such determinations were more often made by fermenting the urine with yeast. For this purpose the sample was divided into two parts, yeast being added to one. Both specimens were then kept for 24 hours in a warm place and then the specific gravity of each was determined. Every degree of difference in the gravity, corresponded to 10 grains of sugar per ounce of urine. (Robert's test). Some writers speak of the use of the polariscope in determining the amount of sugar.

It is clear that by 1860 the methods of testing urines for sugar were sufficiently well understood to make the detection of glycosuria a simple matter. To what extent was this information applied? Naturally we should expect such tests to be utilized first in the better hospitals. The general practitioner would probably lag behind the leaders in the profession. In this city New York Hospital was not only one of the oldest but the leading hospital. Its physicians stood high in the profession. What do the records of this hospital show?

I went over 409 consecutive case histories of medical patients admitted between March 26 and October 15, 1860. In only 63 case histories is there even any *mention* of the character of the urine, and in only 19 of these 63 does this state the results of a chemical test, namely the test for albumin. In the remaining 44 cases where the urine is mentioned, the comments are limited to such phrases as "Scanty and high colored", or "High colored and acid", or "Abundant and clear". In not one of these 409 cases is there a single instance of a test for sugar, and naturally, not a single case of diabetes. It may be remarked that of the 19 cases tested for albumin, there were three in which microscopical findings are reported.

Out of 250 consecutive case histories of medical patients treated in 1869 only 17 had any mention of the character

of the urine, 12 of these 17 mentioning tests for albumin. In six cases a microscopical examination is recorded. There are 5 cases of Bright's disease in which the only urine information is a record of the daily quantity. Again, not a single test recorded for sugar, and of course, not one case of diabetes among these 250 consecutive medical cases.

In 1880 some progress is already evident. Compared with the histories of a decade before, we find an increased proportion of tests made of the urine. Moreover the examination always includes microscopical work. The chemical tests, to be sure, are limited to tests for albumin. Only in one instance, a case of diabetes, is the presence of sugar mentioned. Out of 100 consecutive medical histories, 37 reported tests of the urine. In all the medical cases admitted from October 1879 to July 1880, some 300 in number, there was only one case of diabetes.

The medical histories of 1890 reveal that routine tests of the urine for albumin, sugar and microscopic appearance have been inaugurated. A study of the histories shows that a report of the findings is always recorded, except in a few cases in which circumstances apparently made it impossible to obtain a specimen of urine. It may be noted that out of 236 consecutive cases not a single case of diabetes was treated.

A glance at the *surgical* histories of this period indicates that routine urine examinations, if made, were only very infrequently recorded. In two cases of gangrene the urine is stated to be normal. Perhaps this indicates that it was tested for sugar. As a rule there is no mention of urinary findings.

During the thirty years, from 1860 to 1890, we see then a progressively increasing interest in the character of the urine in the medical patients treated at the New York Hospital. But if the practice of examinations of the urine for sugar was so slow in becoming a routine measure in one of the city's foremost hospitals, we may be sure it was very much slower among private physicians. In fact it is not a routine procedure even now.

Dr. Mosenthal has referred to the marked increase in the registered death rate of diabetes, and has, I am convinced, correctly ascribed the sharp increase occurring in 1901 to the adoption of the International Classification of Causes of Death. Dr. Guilfooy, who became Registrar of Records in that year, shares in this view.

Inasmuch as there has been a steady increase in the diabetes death rate since that time I wish to point out a number of factors which have undoubtedly played a considerable part in this increase.

First—the increasing practice of physicians to have the urine of their patients examined for sugar. This readily explains the steady rise in the registered death rate from 1870 to 1900. Added to this is the more frequent routine medical examination of women, including tests for urine, during the past thirty years. The fact that even now, as Dr. Mosenthal has told you, out of 1600 cases of diabetes treated in 24 hospitals in this city, nearly one-third were diagnosed after admission for some other ailment, indicates that this factor must still be reckoned with.

Second—is the aging of the population. I have calculated that if New York City had the same age distribution in 1930 that it had in 1900, the diabetes death rate in 1930 would have been four points lower than it was, i.e., 22 instead of 26.

Third—the enormous influx of Jewish immigrants into this city from 1900 to 1915. From a detailed study of deaths among Jews and non-Jews, I feel confident that our diabetes death rate would have been nearly two points lower in 1930 if we had only the same proportion of Jews that we had in 1900. The large Jewish population accounts largely for the fact that the diabetes death rate in New York City is higher than it is in other large cities. That Boston with a much smaller proportion of Jews also has a high diabetes death rate is explained by the large proportion of non-residents among its diabetes deaths. In Boston

this amounts to about 20 per cent, while in New York it is only 2 per cent.

Inasmuch as immigration practically ceased in 1915 we may look for a cessation of the rise in diabetes mortality, at least as far as the Jewish factor is concerned, after the next decade or so. After that the death rate should become fairly stabilized except as it may be influenced by the other factors.

A Fourth factor which has been advanced by some students of the problem to account for the rising diabetes mortality rate is the prolongation of life brought about in diabetics by the administration of insulin. It is true that insulin treatment causes the diabetic to die at higher age periods than was formerly the case and it has, therefore, affected the course of the specific death rates in the higher age groups. But the death of these persons would presumably have been charged to diabetes in any case, and would not therefore have influenced the general diabetes death rate, i.e., the rate for all ages calculated on the total population.

Altogther I am convinced that these various factors must be borne in mind before we devote much effort to a search for other causes of the increasing mortality charged to diabetes—and before we draw conclusions from such facts as the parallelism between sugar consumption and diabetes mortality.

I am beginning to feel that the various factors just mentioned are perhaps sufficient to explain nearly if not all of the registered increase in diabetes mortality. In 1901-5 the rate in New York City was 13.8 per 100,000; in 1926-30 it was 24.4. I have already accounted for over half of this increase by the change in the age composition of the population and by the increase in the proportion of Jews. The marked rise in the diabetes death rate among females, which, after all, is the one great factor responsible for the mounting diabetes death rate, is very probably

largely fictitious in the sense that it most likely reflects principally the increased frequency with which women are having urine examinations made for sugar. I am very skeptical of the view that during the past thirty years there has been any such increase in the prevalence of diabetes among women as would seem to be indicated by the mortality statistics.

The significance of the varying course of the diabetic mortality for males and females in the different age groups is still obscure. The matter will probably become clearer once we have more complete information regarding the prevalence of diabetes in the population. In the case of communicable diseases the Department of Health obtains such information by requiring the notification of all cases of the disease. The suggestion that the same procedure be followed in the case of diabetes has not been received with favor, and it has also been questioned whether it would be necessary for the Department to require such reports. Perhaps sufficient information regarding the incidence of diabetes can be obtained by random sampling.

From the graphs which Dr. Mosenthal presented you will have seen the great preponderance of females over males in the diabetes deaths of persons over 45. I am able to add an interesting fact to this showing. Classifying the diabetes deaths in New York City during the years 1931 and 1932, according to age, sex and civil conditions, I find that among *unmarried* persons over 45 years of age, there is no such preponderance of females over males. In fact the rates are about the same for the two sexes. Inasmuch as the preponderance of females among the diabetes deaths over 45, is marked both among *married persons*, and among *the widowed*, strong support is furnished for the belief in some influence of pregnancy as a factor in diabetes. I hope that this point will be discussed by some of the other speakers.

Dr. Mosenthal has pointed out the unsatisfactory character of our present mortality statistics on diabetes, and

indicated clearly that they give a misleading picture of the fatality due to that disease. Others have made similar criticisms of the tables of diabetes mortality published by the Department of Health. In this connection I have recently been sending letters to physicians signing death certificates giving diabetes as the cause of death. Out of 463 such deaths inquired into, death was stated to have been caused by *coma*, in 172 cases. Dr. Mosenthal cited Joslin's experience in the marked reduction of coma deaths following the introduction of insulin. You may recall that in the period 1928-30 only about 10 per cent of Joslin's patients died in coma.

New York City's figures, based on the 463 letters to which I have referred, show 37 per cent of the recent deaths to have been the result of coma. I am now trying to learn what proportion of these coma cases were true diabetic coma. Since diabetic coma is preventable, any considerable proportion of such cases emphasizes not only the need of organizing control measures, but gives assurance that such measures will achieve worth-while results.

In the present state of our knowledge, what might be some of the first steps of such a program? How could the Department of Health contribute to the plan?

From what Dr. Mosenthal has said it is clear that our knowledge concerning diabetes is still very incomplete. Hence much of our effort should consist in devising and carrying out a much more thorough study of diabetes. We already have a number of excellent clinics devoted especially to diabetes. These might well constitute the nucleus around which to organize well-coordinated investigations into various important phases of diabetes. Perhaps an association of these clinics, modeled on the Association of Tuberculosis Clinics, would stimulate work of this kind. In addition to this the Department of Health should continue to collect statistical information on diabetes, seeking especially to discover the incidence of the disease, and to obtain more accurate data regarding fatal cases.

So far as incidence studies are concerned, the Department of Health might undertake urine examinations in connection with its medical examination of those applying for employment certificates, and of those attending continuation schools. Perhaps also such examinations could be made of mothers attending the Baby Health Stations. A limited number of persons could also have their urine tested for sugar in connection with the Health Department's one clinic for the examination of food handlers.

The suggestion has been made that the medical examination of school children include a test of the urine for sugar. It is not likely that this would be feasible for the examinations made by the Health Department's physicians, but the suggestion might be adopted for the examinations made of school entrants by private physicians. It must of course be considered that the proportion of cases of glycosuria discovered in this way would probably be very small. Possibly the high school authorities could be induced to make routine urine examinations of all their pupils, having the work done in their own chemical laboratories.

Another measure which might become a part of the control program, is the examination of other members of a diabetic's family. By means of visits made by nurses to the homes of diabetics attending free clinics, such examinations could be encouraged. It is possible that this would result in the discovery of unsuspected cases of diabetes, perhaps in an early stage of the disease.

Despite the obscurity which still surrounds our knowledge of diabetes, the fact remains that medical science already has at its disposal a considerable fund of information the application of which is effective in dealing with diabetes. Unfortunately this information is not sufficiently disseminated either among the medical profession or the general public. An important part of a control program should therefore consist in making this information more generally available.

So far as the general practitioner is concerned it would be helpful to organize courses of instruction at the various *diabetic clinics*. These courses should be so arranged that almost all the time a course would be going on at some one clinic.

The Health Department should disseminate information to the general public regarding diabetes, especially information which calls attention to the prevalence of the disease, the importance of medical examinations for its discovery, and the excellent results following proper treatment. The Department might also prepare exhibit material, for the education of diabetics in matters of diet. Such material would include reproductions of some of the more common *articles composing a diabetic diet*; lists of foods showing the carbohydrate, fat and protein content; booklets of recipes; circulars on skin and foot hygiene, etc.

The program should also seek to provide *diagnostic facilities* for diabetics unable to pay a specialist's fee. After all, every effort should be made to keep as many of the patients as possible under the care of the family physician. Possibly laboratory facilities for the determination of blood sugar for private physicians, should be provided by the municipal authorities. A free diagnostic consultation service, similar to that now provided free to physicians for their suspected cases of tuberculosis, might be established.

Special consideration should be given to meeting the insulin needs of really indigent patients. During the past two years this problem has been most pressing.

These might well be the first steps in organizing a program for the control of diabetes. Additional steps must be evolved as we proceed. The health problem presented by diabetes is important and it is urged that we make a start. I hope that Dr. Mosenthal's address will mark this happy event.

DISCUSSION: HEREDITY AND PREVENTION

ELLIOTT P. JOSLIN

With two thousand deaths yearly from diabetes mellitus there is no question but that New York City has a problem in its diabetic situation and it is also true that all the rest of the country is watching to see what the City which gave us Dr. Hermann Biggs will do with it. Every word spoken by Dr. Mosenthal and Dr. Bolduan emphasizes its importance. To Dr. Mosenthal's clear statement of the situation I wish to add two premises—first, the duration of life of the diabetic has doubled. Now one is dealing with a ten-year disease and not, as half a generation ago, with a five-year disease. Furthermore, the duration of life of the diabetic is continuing to advance. Therefore, all plans for treatment must be conceived on a ten-year basis as a minimum. Second, the average age at death of a diabetic is now 61 years. Half a generation ago it was 44 years. Each year of life you add to the life span of a diabetic by so much you increase the care of a diabetic old age. If the patients are hospitalized, they almost become immortals. because in a hospital the treatment of diabetes is so good. A single, old, diabetic occupying a bed in a hospital for a year bars admission to 52 young and hopeful diabetics each for a week's stay.

Three principles underly the Control and Prevention of Diabetes—the topics assigned to me in this symposium. (1) Diabetes is a Doctor's Disease. It is a disease for the doctor to treat and not for the state, the city or for boards of health. It is not a contagious disease. Diabetes should be treated in the home by the family doctor. The disease is chronic, but its complications are acute and diabetics need their doctors for temporary care as often as for permanent care. Treatment is individual and not wholesale, and, furthermore, the treatment is so individual that the patient who pays for it is the one who appreciates it and is helped most by it. In every way the family doctor should be encouraged to treat diabetes and it should be made easy for him to do so, (a) by providing cheap blood sugar and

other similar tests. In a laboratory these can be done at a profit at a very small outlay provided 20 or 30 blood sugar tests are done daily, but if the tests are done singly the expense is great. Hence, arrangements must be made by the doctors among themselves or in connection with hospitals by which such tests can be performed collectively. The secret lies in the doctors combining and thus producing an output sufficient to reduce costs. (b) A Wandering Diabetic Nurse would be of great assistance to a doctor in the education of his patients and of this I will speak later. (c) If free insulin is to be distributed it would seem wiser to give it away through the individual physician rather than wholesale in large clinics. A little insulin will go a long way in this manner. By keeping the treatment of diabetes in the hands of the private practitioner I believe money will be saved for the Government which otherwise would be swamped with thousands of diabetics demanding a dole.

(2) Focus on the Family for the Prevention of Diabetes is the second principle I would urge, because heredity is the most important factor in etiology. Naunyn found heredity in 18 per cent and Dr. Mosenthal has referred to the commonly accepted view of 20 per cent and originally that per cent existed in my group of cases, but this percentage has changed. Dr. Priscilla White in studying our children has found that the heredity is now 34 per cent for the whole group, but that for the children who have had diabetes ten years or more it is 49 per cent. So, too, with adults, a group of cases seen five years ago showed an heredity of 28 per cent, but during the five-year period continued questioning has disclosed new evidences of heredity and the 28 per cent has changed to an heredity of 37 per cent. The parents of diabetic children show diabetes four times as often as do the parents of non-diabetic children and diabetes was found to be ten times as common in the brothers and sisters of diabetics as in the siblings of the control population. So interested have we become in this question of heredity that the records of some 500 cases were submitted to the Department of Physiology at

Harvard University. The data were collected with great care by Dr. White and have been analyzed by Dr. Pincus and their paper has been accepted for publication by the American Journal of Medical Sciences. They find that diabetes is inherited in the Mendelian recessive fashion. Finally, 105 relatives of our patients have been studied by Dr. White and in this way ten undiagnosed cases of diabetes were found.

Whenever a patient comes to the office we make it a point casually to ask, "Has anyone in your family developed diabetes?", because we want the patients to realize this hereditary element and to protect their families. Who cares more for your father and mother, your brother and sister and for your children than yourself? Focus on the family to prevent diabetes.

Thus far the evidence leads us to conclude that if two diabetics marry, their children will develop the disease; if a diabetic marries a non-diabetic but of a diabetic family one-half of the children will develop the disease; if two non-diabetics but hereditarily predisposed to diabetes marry one-fourth of the children should show diabetes; but, if a diabetic marries a non-diabetic of a non-diabetic family, the children will escape the disease.

Obesity. In contrast to an hereditary, "blameless" diabetes is the "blamable" diabetes associated with obesity according to Priesel and Wagner. When the onset of diabetes occurs after the age of thirty-five there is usually a history of obesity. In one series of 1,000 diabetics there was hardly a diabetic between 50 and 60 years of age who was not over-weight prior to the onset of diabetes, and a second series of 1,000 cases confirmed the early observations. Therefore, do not get fat if anyone in your family has diabetes. Again to promulgate this doctrine one should *focus on the family*.

Dr. Bolduan's interesting statement about the frequency of diabetes in married in contrast to single women excited my curiosity. Some years ago Mr. Mead of the Lincoln

National Life Insurance Company pointed out that the frequency of constitutional diseases in general increases as age advances and particularly as obesity advances, but that diabetes is to this extent an exception to the rule; its incidence increases with age only in the fat, while in the thin it remains constant throughout life. I wondered what would be the average weight of our married diabetics over 45 years of age as compared with our single diabetics and to answer this question my office was turned upside down for several days.

Among our last 4,000 diabetics Dr. Root and my secretaries found 1,437 females with onset of the disease above the age of 45 years. Of this number 1,326 were married and their average weight was 181 pounds. One hundred and eleven were single and their average weight was 20 pounds less or 161. I submit these facts in explanation of Dr. Bolduan's discovery. There were 295 Jewish patients and their average weight was 176 pounds whereas the average weight of the Gentile patients was 180 pounds. Incidentally, the charts showed that the married Gentile patients without children had an average weight of 180 and the married Hebrew patients without children a weight of 185 pounds. The heredity of the Gentile females was 29 per cent and of the Hebrew females 31 per cent.

Puberty, pregnancy and the menopause are periods when obesity readily develops. Convalescence from operations, accidents and infectious diseases furnish another occasion for becoming fat. The transfer from active occupations plays a great role. Therefore, *focus on the family* to prevent diabetes and urge each patient to warn his relatives not to get fat.

(3) Focus on the Patient for the Prevention of Complications. Prior to 1914 the mortality for diabetic coma was 60 per cent in my group of patients and approximately the same percentage held for the cases of von Noorden. Fortunately, Dr. Augustus I. Knight, Medical Director of the Metropolitan Life Insurance Company, was my teacher in 1892 in the Harvard Medical School and through his

courtesy and under the supervision of Dr. Dublin and Mr. Marks of his Department summaries have been made of the causes of death of my patients. It appears that in the first few years following the discovery of insulin the coma mortality dropped to 20 per cent; in the middle Banting period it fell to 10 per cent, and a few days ago Mr. Marks informed me that during the last three years the percentage of coma in patients formerly under my care but who have died in various parts of the country was 4.8 per cent. These figures show improvement of treatment not of any one doctor but of a whole group of doctors. I am quite sure that there must be some error in the high percentage of deaths from coma in New York City and I think a closer analysis of the same would lower the coma rate. To determine the point hospital deaths might be segregated and analyzed separately.

Coma is just around the corner from every diabetic— young or old—and, therefore, one must *focus on the patient* to prevent this complication. The patients must know the six rules which they are to follow whenever indisposed. I forebear repeating them again in this place.

Another example of the importance of training the patient, but not mentioned this evening, follows. In January, 1932, the mortality from diabetes according to the Metropolitan Life Insurance Company for the approximately 21 millions which it insures was 22 per 100,000. In January, 1933, it was 32 per 100,000 or approximately an increase of 50 per cent in one year and I suspect that this increase was due largely to the influenza epidemic of 1933. This shocking increase I believe could have been reduced if patients had been taught the value of insulin during infections. For some time we have tried to make our patients realize that although they do not need insulin regularly, it is life-saving when pneumonia or some other infection develops. Often we give them insulin temporarily just to make them acquainted with it. In this way we *focus on the patient* and train him how to use insulin when infections arise.

Tuberculosis is not frequent in diabetics today, but Dr. Root and Dr. White have found in studies upon children that the diabetic child has ten times as much tuberculosis as the ordinary school child of similar age in Massachusetts. Obviously one must focus on the patient and prevent exposure to tuberculosis.

Finally, the care of the skin of the diabetic, particularly of the feet, is of the utmost importance. I tell my diabetics that I want them known as the cleanest citizens in the community. Gangrene exacts a fearful toll, but in a measure it can be avoided by care of the feet and cleanliness.

The education of the diabetic with his ten-year disease is everything. Last year one of our Wandering Diabetic Nurses visited 20 poor families during a five weeks' trip to three States. Before sending her we wrote the doctors, thus securing their approval of the visit. I know that she accomplished much. If one nurse can see 20 patients in three States in five weeks she can see 200 patients in 50 weeks, and in a city could certainly visit 400 diabetic homes in a year. Doctors need Wandering Diabetic Nurses at their disposal to help them with their poor patients as well as with their patients of moderate means. A Wandering Diabetic Nurse for one day in the home accomplishes far more in the prevention of diabetic complications and in the prevention of diabetes than often can be achieved by several office visits.

Diabetics now live ten years and will live longer.

Diabetics die at 61 years and will die older.

Diabetes is a disease to be treated by the doctor in the home.

Focus on the diabetic family for the prevention of diabetes.

Focus on the patient for the prevention of complications.

DISCUSSION: CLINICAL PHASES

NELLIS B. FOSTER

The facts brought out in Doctor Mosenthal's paper and the discussion throw into prominence the two important factors in the etiology of diabetes. These are: the immediate factor which the consensus of opinion now assumes to be a disorder of the pancreas, and the ultimate factor, the causation of the deficiency of the pancreas. There is constantly increasing evidence that the ultimate factor in diabetes is inheritance. If diabetes be an heritable disease, then any attempt at the eradication of the disease must depend upon eugenics. It is conceivable, if diabetes is heritable, that the propensity to the disease is different in different individuals. If this propensity is very pronounced the disease develops in early life, if it is slight it develops in later life or depends upon circumstance. Now, circumstance is environment—a very complex matter including nourishment, occupation and many other factors. It seems, then, a little dubious whether it is possible to entertain much hope of controlling the incidence of diabetes if this incidence depends, in the first instance on inheritance, and in the second upon environment. In the last analysis both factors mean for the individual a self-imposed discipline in life which we could hardly expect, human nature being what it is. It seems to me that we ought to face the fact that diabetes is likely to increase, simply, because we now have at our hands a means of keeping diabetics in relative health and tainted stocks are sure to propagate.

While control of incidence seems dubious, we are however on sure ground in our ability to aid the individual who has diabetes. His outlook not only for life but also for comfort and happiness can hardly be compared with that outlook a decade ago. When we think of the treatment of diabetes we think first of diet. But with insulin, diet is gradually becoming less and less a matter of restriction in food, rather, it is a search for the proper quantities and character of foods required by different persons. Measured

in calories, two individuals of approximately the same age, height and weight may differ by as much as fifty per cent in the amount of food necessary to keep them in a state of good nutrition. There is then, in my opinion, no such thing as a standardized diet for diabetics. The problem must be worked out for each individual and the test of success is the state of nutrition and the energy that the person has. There has been a great departure from the older ideas, chiefly, with regard to carbohydrate intake. I presume that at present the average adult diabetic among my patients is taking somewhere between two hundred and two hundred and fifty grams of carbohydrate a day. It is on carbohydrate that we depend particularly to change caloric intake. Protein is more or less fixed and the majority of people do not care for fat excepting as butter and cream. There is a good deal being said about fat in relation to the development of arteriosclerosis. The only definite evidence we have at the present time is derived from animal experimentation and it is wholly unsafe to assume that like conditions prevail with human beings.

In arranging the life of a diabetic, sufficient attention is not given to exercise. It is commonly recognized that exercise increases the ability of the tissues to utilize sugar; this is exemplified in the fact that patients who are using insulin require less when they are taking exercise. But this principle is not largely applied in the general management of this disease. It would be better if it were.

The third important consideration in treatment is the psychic state of the patient. I should like to amend the definition of good treatment that has been given by Doctor Mosenthal, who mentioned the laboratory tests and the standards which must be met. That is not sufficient. Laboratory standards may be met and yet the patient may not be in a state of mental serenity and so reconciled to his handicap that he can carry on his life in the healthy way. It is sometimes difficult to educate a patient to live in harmony with his disease, but it is absolutely essential, I think, that this be done. With children it is usually not

difficult and the necessary formalities become habits which sink into the background of consciousness; the same thing, however, must be done with adults. The ideal is to teach patients to give themselves good care and at the same time not to become emotionally obsessed by the necessities.

DISCUSSION: RECENT TRENDS IN DIABETES MORTALITY

LOUIS I. DUBLIN, PH.D.

Dr. Mosenthal's paper and the discussions by Dr. Joslin, Dr. Bolduan and Dr. Foster have been so rich in content that it is hardly necessary for me to present a set paper on diabetes. Possibly the most useful contribution that I can make is to touch on the high spots in these several papers, to help leave in your mind a unified impression and more especially would I touch on those aspects of the problem that relate to the control of this condition as a public health measure.

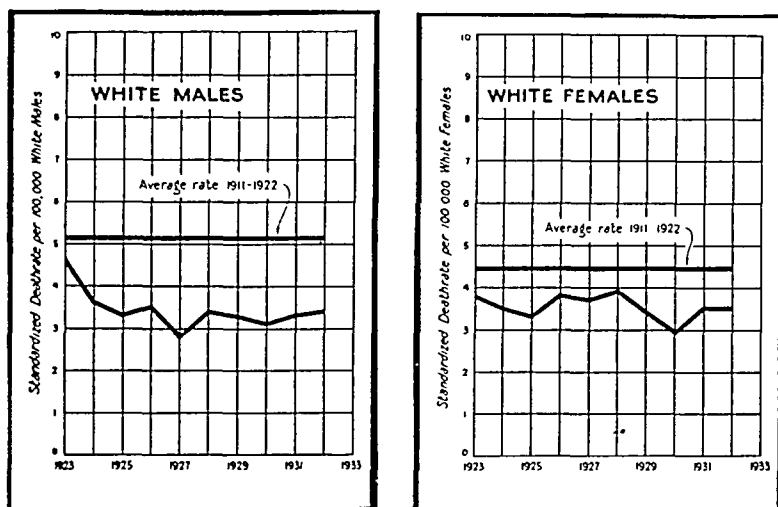
The first point that I would make is that diabetes today presents a serious and growing public health problem. This has developed in the course of the present generation. Thirty years ago diabetes was a minor cause of death. Even if we grant the incompleteness of registration, it is perfectly clear that a relatively small number of deaths from diabetes actually occurred. Today, it is tenth in the list of causes of death. Among females, it is ninth in order of importance and if we limit our comparison to ages 45 and over, it is seventh in order of importance as a cause of death. Today, more women over 45 years of age die of diabetes than of tuberculosis. In fact, we know that from two to three per cent of our present population will ultimately die of diabetes. It is for these reasons that more and more public and medical attention must be directed to the problem of diabetes, and an organized program of control developed, as was done for tuberculosis a generation ago.

I would not, however, exaggerate the seriousness of the present diabetic situation. It is easy to overstate the case.

Chart 1

TREND OF DIABETES DEATH RATE IN THE
INSULIN PERIOD

Ages Under 45 Years



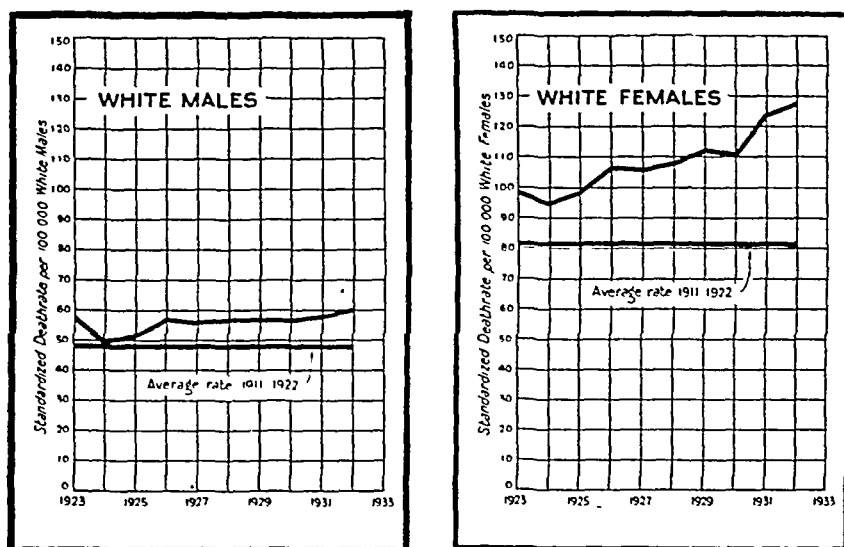
METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT

As Dr. Mosenthal has already indicated, and as is shown in Charts I and II for the Metropolitan policyholders, the increase in the mortality from diabetes is altogether limited to ages 45 and over. Under age 45, there has been marked improvement in the situation, and even after 45 the increase is pronounced primarily among women. So far as men are concerned, there has been little change in the situation between ages 45 and 65, and such increase as has occurred is limited to old men. We are today concerned, therefore, with diabetes chiefly as a problem of women in middle and later life, and secondly as a problem of old age in men.

The discovery of insulin did bring about a new era in the treatment of diabetes. It has undoubtedly proved a marvelous remedy. This is clearly indicated by the improvement in the mortality at the younger ages where

Chart 2
TREND OF DIABETES DEATH RATE IN THE
INSULIN PERIOD

Ages 45 to 74 Years



METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT

heretofore the disease was, in most instances, a death warrant. In so far as the older people are concerned, insulin has proved an effective agent in prolonging the life of the diabetic many years. But this very fact helps, in a measure, to explain the phenomenon of the increasing death rate. The extensive use of insulin has served to increase the number of cases after age 45, and in this way has helped to shift the mortality from the younger ages to the older ones.

Another point of some interest is the shift in recent years in the ratios of deaths between the two sexes. Thirty years ago, all of the tabulations showed a slight excess of males over females. Today, we find almost uniformly many more deaths among females than among males, and the death-rates after 45 are twice as high among women as among men. This is an interesting problem that calls for more intensive study.

In a very real sense, there is a paradox in the present diabetic situation. There has been an undoubted improvement in the treatment of the disease. Nevertheless, this improvement has been accompanied with an increase in the number of deaths. It is necessary to conclude, therefore, that there are today many more cases than occurred in the past. I wish it were possible to register the cases of diabetes as we have done for a long time the cases of tuberculosis, because then we should not have to guess at this increase and its extent. Possibly, in some localized area, or as a special demonstration, physicians will arrange to register their cases of diabetes with some central bureau in order that this problem of the incidence of the disease may be carefully and accurately studied.

This increase in the incidence of diabetes is, however, a two-fold one, partly apparent and partly real. Let us consider first what I have chosen to call the apparent increase. In the first place, we are today better equipped to recognize the disease and to diagnose it early. There has been a very great expansion in medical facilities. The technique of diagnosis has been greatly improved. Dr. Bolduan has shown how the more extensive use of laboratories in hospitals and clinics developed, and this has increased the number of cases on record. The increase in the amount of insurance carried by the population has contributed greatly in discovering many cases of diabetes. In many instances, persons have discovered that they had a diabetic condition only after they had applied for insurance and had been rejected by the company. The insurance companies have also encouraged periodic health examinations, and this has helped. But all of this improvement in medical facilities has not really added a single case to the number of diabetics. It has merely enabled us to identify more cases than was possible before, and when death occurred many of these cases were registered as deaths from diabetes, rather than from some other cause, as actually did happen in the past. The discovery of insulin itself created an intense and widespread interest in the disease. More

physicians now look for the disease than ever before. Altogether, there has been a great improvement in the registering of cases.

In like manner, the shifts that have taken place in the age and sex composition of our population and in the racial structure of our population, have helped to bring about an increase in the number of cases. There has been a shifting in the structure of the population in the direction of more women, more old people and more of the racial groups which have a high incidence of diabetes. Broadly considered, these changes in population structure may also be included as among the factors in the apparent rise of diabetes.

In contrast with these items, there are a number of causes which have been at work during the last generation which have, in a very real sense, increased the number of diabetics. The first of these social forces was the improvement in the standard of life of the population. During the last generation, there was a very appreciable improvement in the economic condition of the people. Real wages increased, and with this came an increase in the buying power of the people. On all sides the average man and woman could enjoy and did enjoy the use of more and more food and other comforts of life. At the same time, while this rise in the standard of life took place, and possibly as a concomitant of it was an increase in the use of machinery and a greater mechanization of industrial processes. More and more people took to industrial employment, and in such employment were called upon to a lesser and lesser degree to use their energy in the production of work. Nor was this shift from manual to mechanical labor limited to industry. It permeated the farms and the homes so that the entire population was relieved of much of the hard and heavy work which in previous generations was a part and parcel of the daily life of the people. So we are confronted with two forces, both operating to disturb the metabolic equilibrium of large numbers of persons. On the one hand, more food materials were taken in and, on the other, less energy was called for to burn it up. The net

result was over-feeding, and in the long run the increase in the number of people overweight and even obese. Unfortunately, it is among such overweight and obese individuals that diabetes takes its greatest toll. In this sense the very conditions of life in the present generation have made the increase of diabetes almost inevitable.

On the whole, however, the present situation in diabetes should not cause us to despair. So far as its increasing mortality is concerned, the problem is a very circumscribed one. It is one of controlling the disease in older people, chiefly in women. To some extent the increase at these older ages need not surprise us. Insulin does not cure diabetes. It does prolong the lives of diabetics, but it does not make them immortal. The disease comes chiefly in later life, and diabetics are prone to the development of heart disease, nephritis and arteriosclerosis, just as other old persons. These diseases occur relatively early among non-diabetic persons who are overweight, and it is not surprising that diabetics, most of whom are overweight, should suffer in the same way.

On the other hand, there are many things we can do to improve this diabetes situation. There are too many premature deaths from coma. We can postpone death from cardiovascular degeneration to a much greater extent than we have succeeded in doing. There are even today large numbers of cases which are not diagnosed as early as they should be. All this calls for an aggressive plan for attack and the speakers this evening have made some excellent recommendations which are a proper part of such a program. I know, too, that the Committee of the Academy of which Dr. Mosenthal is the head, is preparing to go forward with a program of this type.

Finally, I would stress the similarity between this program as it has been outlined by Dr. Mosenthal, and the classic program of control against tuberculosis which we associate with the name of Hermann Biggs. You will all remember that his conception of the campaign against

tuberculosis was broad and comprehensive. It involved all the agencies of the community. It emphasized their cooperation with the family of the tuberculous patient. He it was who first called for registration of these cases, and impressed upon his workers the importance of looking for the new cases in the families of those who were already sick with the disease. He established clinics for the better diagnosis of the disease and for the provision of necessary treatment for indigent patients who for one reason or another could not be treated in sanatoria. He organized the personnel at his command in such manner that there was a constant contact with families of the sick, and in this way they were given better care and guidance, and their families were helped to avoid acquiring the disease despite the presence of the sick individual. This program, associated with the name of Dr. Hermann Biggs, has produced the results which form one of the brightest pages in the history of public health, and they are an everlasting tribute to the name of the man whom we honor tonight.

But what Biggs did not realize was that in his campaign against tuberculosis he was showing us the way to methods for the control of other diseases of adult life, such as heart disease, cancer and diabetes. He builded better than he knew. It is, therefore, particularly gratifying to us tonight in hearing this fine lecture in his memory, which Dr. Mosenthal has given us, to find that Biggs' name and Biggs' prestige has its part in this new development in the public health field. We have a right to expect that his methods of attack extended to diabetes will have as much value and effectiveness as they had when applied to tuberculosis. I sincerely believe that when we gather again in ten years or in twenty years to evaluate the accomplishment of this program, we shall find that the recommendations of Doctors Mosenthal, Joslin and Bolduan shall have been just as successful in controlling diabetes as Dr. Biggs' program against tuberculosis, from which these men have drawn help and inspiration.

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DEATHS OF FELLOWS OF THE ACADEMY

FOSTER, NELLIS BARNES, M.D., 850 Park Avenue, New York City; graduated in medicine from Johns Hopkins Medical School, Baltimore, in 1902; elected a Fellow of the Academy January 5, 1911; died, August 20, 1933. Dr. Foster was a Fellow of the American Medical Association, a member of the Society of American Physicians, a member of the Society of American Clinical Investigators, a member of the County and State Medical Societies, a member of the Alumni Association of New York Hospital, Attending Physician to New York Hospital, Consulting Physician to Woman's, Englewood, Mt. Vernon, and Goshen Hospitals, and Consulting Internist to Horton Memorial. He taught biological chemistry at Columbia University, 1906-12 and was an Associate Professor of Medicine at Cornell Medical College, 1914-17. In 1917 he was Professor of Medicine at the University of Michigan and Director of the Medical Clinic of the University Hospital. From 1919 to 1932 he was Associate Professor and from 1932, Professor of Clinical Medicine at Cornell Medical College. His services to the Academy were numerous and important. He was for five years a member of the Committee on Admission and its Chairman in 1925. He was a member of the Committee on Medical Education for eight years and its Chairman from 1928 to 1932.

GREENE, ROBERT HOLMES, M.D., 150 East 49 Street, New York City; graduated in medicine from Harvard Medical School, Boston, in 1886; elected a Fellow of the Academy October 1, 1891; died, August 28, 1933. Dr. Greene was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Society of Genito-Urinary Surgery, a member of the County and State Medical Societies, a member of the Urological Society, and Consulting Genito-Urinary Surgeon to City Hospital.

NISBET, JAMES DOUGLAS, M.D., Van Wyck, South Carolina; graduated in medicine from the Louisville Medical College, Kentucky, in 1886; elected a Fellow of the Academy November 4, 1897; died, July 27, 1933.

WARD, FREEMAN FORD, M.D., 121 East 60 Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1894; elected a Fellow of the Academy May 2, 1901; died, August 22, 1933. Dr. Ward was a Fellow of the American Medical Association, a member of the County and State Medical Societies, a member of the Gastro-Enterological Society, and a member of the Society of Alumni of Sloane Hospital for Women.

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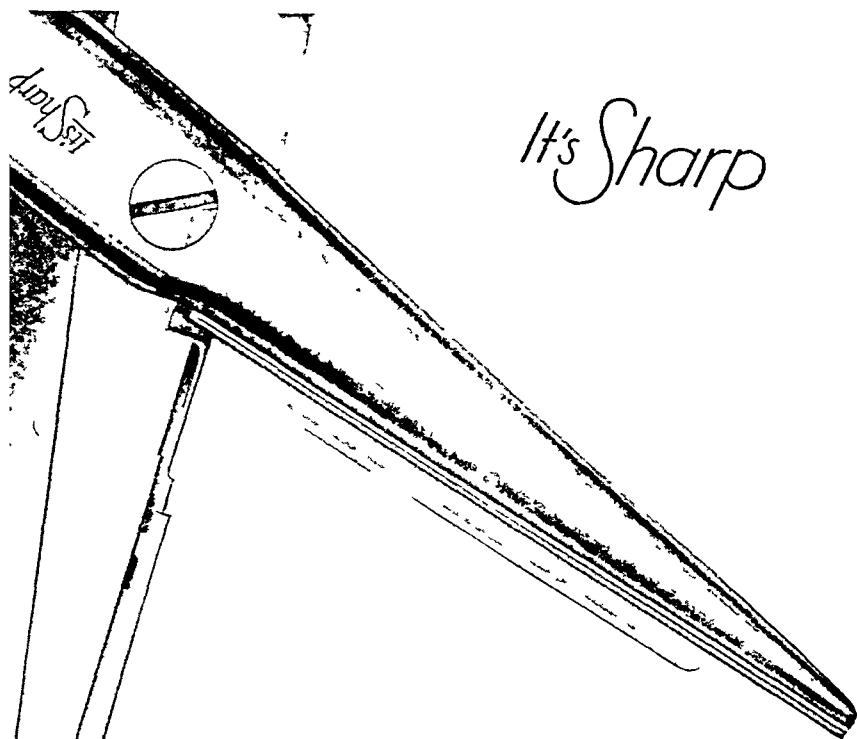
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his Award will be made on the basis of papers published or accepted for publication on or before Dec. 1, 1934. It will be made irrespective of whether or not the Main Clinical Award is postponed.

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2. If the Main Award is not postponed, that paper which contributes most to the understanding of the p of vitamin A and/or the pathognomy of avitaminosis A will be selected for the Second Award.

ADDITIONAL INFORMATION

etails, investigators are referred to the original announcement published in the *Journal of the American ciation*, 98:14-15, or they may correspond with Dr. Warren M. Cox, Secretary to the Judges, Mead arch Laboratory, Evansville, Ind., U.S.A. It is suggested that the Secretary's attention be drawn to they are accepted for publication. It is important that no correspondence on this subject be sent directly e Judges, but be addressed to the Secretary.

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BULLETIN
OF
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INCORPORATED 1851

AUGUST, 1933

PUBLISHED MONTHLY BY
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CONTENTS

Scurvy—"The Plague of the Sea and the Spoyle of Mariners", Karl Vogel	459
The Medical Information Bureau of The New York Academy of Medicine, Iago Galdston.....	484
Friday Afternoon Lectures.....	494
The Prognosis of Heart Disease, R. T. Grant.....	500
<i>Library Notes:</i>	
Gifts from Dr. Neumann, Helen Field.....	502
Recent Accessions	503
Hours During the Summer.....	503
Deaths of Fellows of the Academy.....	503

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VOL. IX

AUGUST, 1933

No. 8

SCURVY—"THE PLAGUE OF THE SEA AND THE SPOYLE OF MARINERS"*

KARL VOGEL

The sailor of the past as he appears to the imagination is usually a rollicking, jolly sort of individual, bronzed by tropic suns, picturesquely garbed, and always ready to drink a dram or spin a yarn of fascinating adventure in southern seas. Such types abound in the pages of fiction, but actually the living conditions at sea were so primitive during the middle ages and even until comparatively recent times that the common seaman had a cruel existence. A naval surgeon of the latter eighteenth century remarks that a sailor of forty-five generally looks fifty-five or sixty, and as late as 1839 the records of the British Registry of Shipping show that of 5,000 seamen only forty-nine appear in employment at the age of sixty. The usual accounts of glorious naval victories or of bold explorations in unknown seas reveal but little of the human suffering that attended them and it is something of a shock to learn of the appalling hardships that were the price of achievement. Overcrowding, cold and wet, lack of cleanliness and ventilation, and above all the monotonous food, often putrid and insufficient, made the life atrociously severe. Captain Luke Fox of Hull, one of the first to attempt the Northwest Passage, in a book with the whimsical title: "Northwest Fox", published in 1635, remarks, "to endure and to suffer, as a hard

*Read before the Section of Historical and Cultural Medicine.

cabbin, cold and salte meate, broken sleepes, mouldy bread, dead beere, wet cloathes, want of fire, all these are within board." In 1629 Sir Henry Mervyn, commanding in the Narrow Seas, wrote to Buckingham "foul weather, naked bodies and empty bellies make the men voice the King's service worse than gallery slavery." John Hollond in a diatribe entitled "The Navy Ript and Ransackt" attacks especially the food: "For the men will, and do run away rather than eat it, and those that do or are forced to stay, contract diseases, sickness, and often death," and in 1703 in a protest to Parliament the complaint was made: "A hot country, stinking meat, maggoty bread, noisome and poisonous scent of bilge water, have made many a brave sailor food for crabs and sharks," while another pamphleteer alleges: "Where we had one man dyed by shot in the Navy we had ten dyed by means of bad provisions." Such unseemly protests no doubt gave much pain to the authorities, and Samuel Pepys whose office had to do with the victualling of the fleet plaintively expostulates: "Englishmen, and more especially seamen, love their bellies above everything else." Surely a sentiment coming with remarkably poor grace from a gentleman himself so addicted to the pleasures of the table. But the victuals must have been pretty awful for Admiral Hawke to describe as "excessively bad" the beer supplied to his ships blockading Brest in 1759, and to object to a fresh supply of bread because it was "full of maggots and weavils"—though he handsomely concedes that it was "not unfit for use." Beer was a routine component of the early sea ration as it largely replaced drinking water, but through the dishonesty of the brewers it was often of infamous quality, became sour and putrid, and was considered responsible for much of the sickness on shipboard, as appears from Sir Walter Raleigh's comment: "In the late Queen's time many thousands did miscarry by corruption of drink as well as of meat." It was this difficulty that finally led to the replacement of beer by wine and rum, till in the first part of the 19th century the brewing of beer for the British Navy was entirely discontinued.

To compensate for the great losses from disease, which were regarded as being inevitable, huge crews were carried and the number of men crowded into the early ships is amazing. A hundred gun first rate of the 17th century with a length of less than one hundred and fifty feet would have a war time complement of 700 men, increased to 800 or more if ordered on foreign service. At the other extreme of size the tiny eight gun sloop *Tryal* of Anson's fleet may be mentioned; on leaving Spithead for the famous circumnavigation of 1741 no less than one hundred men had to face the prospect of a cruise of years between her decks.

Consequently infectious diseases spread with fulminating rapidity, as on Sir Francis Drake's voyage to the West Indies in 1585 when in a sudden epidemic two or three hundred men died in a few days and before it ceased six hundred had been buried of a force of twenty-three hundred. In the Portugal expedition of a few years later out of a strength of twelve thousand nearly one-half perished from sickness. Owing to the parsimony of Elizabeth even in an emergency endangering the safety of her kingdom, the fleet opposed to the great Armada was handicapped not only by lack of munitions but also of provisions and other essential supplies so that the men were weakened by exposure and undernourishment. A few days after the Spanish defeat Lord Howard of Effingham, the Lord High Admiral, wrote to Burghley: "Sicknes and mortallitie begin wonderfullie to growe amongst us . . . The Elizabeth which hath don as well as eaver anie ship did in anie service hath had a great infectione in her from the beginning soe as of the 500 men which she carried out by the time she had been in Plymouth three weeks or a month there were ded of them 200 and above." A little later he writes again: "The most part of the fleet is grivouslie infected and die dailie . . . and the ships themselves be so infectious and corrupted as it is thought to be a verie plague . . . manie of the ships have hardly enough men to waie their anchors." The disease is supposed to have been acute enteritis caused by the sour beer.

But man-power was cheap, and the authorities remained callously indifferent to the well-being of the sailors and it was not until the days of the Commonwealth that any real attempt was made to afford ill or wounded seamen proper attention by hospital care ashore. Hammocks were not introduced in the Royal Navy until 1597 and then only in the proportion of one for every two men and were issued solely for foreign service and not to ships in home waters. But in the matter of bunting there was greater liberality for the records show that during many years the outlay for flags was nearly double that for hammocks, and as Oppenheim remarks, this esthetic refreshment must have been a great solace to the weary men.

The inevitable natural dampness of the ships' holds and decks was increased by the custom of frequently scrubbing the decks and flushing them with salt water. In new ships the unseasoned timbers and the pickling solutions in which they were soaked with the idea of preserving them helped maintain an atmosphere of perpetual moisture so that in bad weather when all openings were battened down the men's bodies, bedding, and clothes had no chance to dry for days or weeks. The bilges were sinks of pestilential effluvia generated by all the refuse that found its way to these recesses and instances are reported of carpenters sent to clear the ship's well dying of suffocation from the noxious gases. In some foreign ships it was the custom to bury the dead in the gravel ballast in order that they might be reinterred ashore, and Sir Gilbert Blane states that in the French ships which he observed in the West Indian campaign the bilges were inconceivably putrid and offensive, for owing to the absence of scuppers all the drainage from the lower decks passed into the hold and after an action mangled limbs and even whole bodies were cast into the orlop and remained there in a putrefying state.

In addition there was the rigid and often harsh discipline enforced by punishments of savage severity, and toward the close of the eighteenth century there was an outbreak of numerous and extensive mutinies. Though fomented by

the revolutionary spirit emanating from France and due in part to the stern treatment and underpayment of the men, the character of the provisions was the chief grievance. In the case of the famous uprising at Spithead in 1797 the petition of the mutineers emphasized especially that the provisions were served out of short weight and inferior quality, that no vegetables were issued to ships in port, that the sick were insufficiently cared for and that luxuries intended for them were embezzled, and that men wounded in action were deprived of their wages pending cure or discharge.

But to this multiplicity of woes scurvy added the worst of all. "The Plague of the Sea and Spoyle of Mariners," and as an early writer says "There's few diseases at sea but what the scurvy requires a share in. Preservation from this would free them [the seamen] from the danger of most diseases." Sir Richard Hawkins has much to say on the subject of scurvy, and estimated that during twenty years of his life at sea it had killed 10,000 men. This was notwithstanding the strange fact that the antiscorbutic properties of the citrus fruits and of green vegetables were well-known even then, and indeed from much earlier times. During the voyage of the fleet to the Western Islands in 1590 he had only one man disabled "though many of every other ship fell sick and died apace." He gave his men "sower oranges and limmons," and so did Captain John Smith, for in his famous "Sea Grammar" written in 1627 he includes in his "petty Tally" of provisions "the juyce of limons for the scurvy." An extraordinary experiment in practical therapeutics as well as a demonstration of sagacious statecraft was in preparation when in February 1600 Elizabeth laid the foundations of the British Empire in India by sending four ships down the Thames as the first expedition of the newly chartered East India Company. There were the usual delays at sea and the usual outbreak of scurvy, so that months later when the little fleet reached Table Bay Captain Lancaster of the *Dragon* after bringing his own ship to anchor had to get out his boats and send men aboard each of his consorts to do the like for them as their crews

were too weakened by the disease to make the effort. Of the 278 men on board these ships 105 died, the healthy condition of the *Dragon's* men being due to the fact that their farsighted commander had taken along a supply of lemon juice and given three spoonfuls to each sailor every morning! The antiscorbutic properties of water cress and scurvy grass were also familiar knowledge to the early mariners. The latter was not eaten as a vegetable but was "boyled in beere", which must have made a rather uninspiring refreshment, or "the grasse was pounded, the juice prest forth and put into a hogshhead of strong beere."

Dramatic instances of the ravages of scurvy will readily occur to those who have at all followed the literature of the sea. There come to mind at once the tribulations of Magellan's men, those stout fellows who—as many as were left of them—first put a girdle round the globe. After the great adventure of being the first to thread the famous strait, for three months and twenty days—famished and nearly helpless through the horrible disease—they headed westward into the unknown before finally touching land. The story is told by Antonio Pigafetta, a young Italian gentleman who went along because he was "desirous of seeing the wonderful things of the ocean" and probably later much regretted this curiosity for he says: "We held our noses as we drank the stinking water. We ate biscuit, but in truth it was biscuit no longer but a powder full of worms, and in addition it was stinking with the urine of rats. So great was the want of food that we were forced to eat the hides with which the main yard was covered . . . We also had to use sawdust as food and rats became such a delicacy that we paid half a ducat apiece for them." The misery of the scurvy patients was appalling and many died, yet strangely enough he was later able cheerfully to remark "I cannot thank God enough that during all this time and among so many sick I never had the slightest indisposition." Perhaps he managed to secure plenty of the rats. When the little *Vittoria* the sole survivor of the fleet finally rounded up to the old quay at Seville only a sickly handful

were left of those who had set out nearly three years before, but they had been the first to sail around the world.

Seldom has an enterprise of great magnitude been so dogged by misfortune as Lord Anson's famous circumnavigation, and rarely has scurvy been more devastating than when it killed four-fifths of those aboard his ships. Intended as a surprise attack to harry the commerce and possessions of Spain in the Pacific, there was so much delay in fitting out the expedition that the Spanish had ample warning. Men were needed elsewhere in the fleet so that it was difficult to complete the crews of Anson's ships and finally an attempt was made to supply the deficiency by impressing 500 superannuated out-pensioners of Chelsea College. These were mostly cripples and invalids, all of whom who were able to walk promptly deserted so that the 259 of this consignment who ultimately shipped were literally decrepit and from 60 to 70 years of age. By this time the season was so far advanced that when the expedition at last reached the Horn it was during the worst time of the year, gales of terrific violence were encountered, the squadron was scattered, two of the ships returned home and one, the *Wager*, was wrecked. During this period of utmost difficulty and danger scurvy began to appear and six weeks later there were few aboard who were not affected. In the course of the three months that elapsed before land was reached, on the flagship, the *Centurion*, over 200 were buried and there were not left more than six foremast men in a watch capable of duty. The disease must have attained a dreadful degree of severity and the description of the men's condition is horrifying. Old wounds reopened though they had been healed for many years, the callus of a bone broken long before dissolved and left the fracture as if it had never consolidated, and men who still seemed comparatively strong while lying in their hammocks immediately expired on attempting to get up or when being carried from one part of the ship to another. The storms continued even after entering the Pacific so that the weakened crew could barely work the ship and it was evident that a rest ashore was imperative to save the lives

of those that still survived. The Island of Juan Fernandez, the scene of Alexander Selkirk's solitary stay, was the nearest spot available, and, faced by the terrible fact that with five or six men dying every day, in a short time his ship would be left too shorthanded to go about, Anson decided to head directly for the island instead of adopting the usual method of first making the correct latitude east or west of it and then running along that parallel until the land was sighted. To his dismay the island was not found where it was expected to be, and then in doubt whether it lay east or west, Anson sailed west till actually within a few hours of it, but convinced that he was wrong turned eastward till he saw the barren coast of Chile and then had to retrace his course against the wind till at last Juan Fernandez was finally reached. This uncertainty as to the longitude owing to the imperfect methods of navigation then in use wasted twelve days and cost the lives of 70 or 80 men who probably would have recovered if they could have been gotten ashore. By a curious trick of fate, John Harrison the Yorkshire carpenter who became one of the world's greatest horologists, by constructing the first practicable marine chronometer had just devised an easy and accurate method of determining longitude at sea, and if this instrument had been on board of the *Centurion* instead of ticking away in its inventor's house in London, these lives would have been saved. When the remaining vessels of the squadron at last straggled in, of the 961 men who had embarked in England only 335 were still alive. The story of the *Wager's* loss and of the remarkable adventures of the survivors was written by one of her officers, John Byron, grandfather of the poet, who utilized some of these incidents in the second canto of "Don Juan" and compared the misadventures of his hero to "those related in my granddad's narrative." In spite of this calamitous beginning Anson with indomitable courage carried on, united the remnants of his crews on the *Centurion* and did much damage to the Dons. Later scurvy again appeared but none the less the survivors captured the great treasure ship from Acapulco, and when the *Centurion* at length reached England again

her commander had the satisfaction of seeing from two to three million pounds worth of Spanish loot triumphantly paraded in 32 wagons through the London streets.

Until long voyages were undertaken so that crews had to remain for months out of contact with the shore scurvy was not a menace to the mariner, but following the discovery of America and the Indies ships sailed to distant parts of the world and the disease had opportunities to develop. There seems to be no reference to its occurring on the voyages of Columbus, and the first mention of scurvy at sea is in Castanheda's account of the voyage of Vasco da Gama in 1497 when he lost 100 of his 160 men while discovering the passage to the Indies by way of the Cape of Good Hope. That even years later the disease was still not generally recognized is shown by the description in Hakluyt of an epidemic that killed 25 of Jaques Cartier's crew on their voyage to New Foundland in 1535. It is related that in the month of December "an unknowen sickness began to spread itselfe amongst us after the strangest sort that ever was eyther heard of or seene, insomuch as some did lose all their strength, and could not stand on their feete, then did their legges swel, their sinnowes shrink as black as any cole. Others also had all their skins spotted with spots of blood of a purple colour; then did it ascend up to their ankels, thighes, shoulders, armes and necke; their mouth became stincking, their gummes so rotten that all the flesh did fall off, even to the rootes of the teeth which did also almost all fall out. With such infection did this sicknesse spread itselfe in our three ships, that about the middle of February of a hundredth and tenne persons that we were, there were not ten whole, so that one could not helpe the other, a most horrible and pitifull case." A masterpiece of concise description, followed by the happy sequel that a cure was finally discovered on shore in the use of a decoction of sassafras bark and leaves; "a singular and excellent remedie against all diseases, the best that ever was found upon earth." An excellent remedy indeed, for it relieved all who were sick



James Lind, M.D. (1716-1794)

from any cause, including "some who had bene diseased and troubled with the French Pockes foure or five yeres, and with this drinke were cleane healed."

According to Lind the first description of scurvy by a physician is in a letter sent in 1541 by one Ecchius to Dr. Blienburchius of Utrecht, but not published till some years later. The first book devoted expressly to the disease is by Balduino Ronsseus in 1564, and it is interesting to

find that he refers to the use of scurvy grass, water cress, and other herbs as a remedy and mentions that seamen on long voyages cure themselves of scurvy by the use of oranges. In the course of time there were many additions to the literature on the subject, and Lind in 1753 collected over a hundred titles, the list of authors including such historic names as those of Thomas Willis, Sylvius, Gideon Harvey, Thomas Sydenham, Poupert, Boerhaave, John Huxham and Sir John Pringle. Among the quaintest contributions is one that escaped the eye of Lind, or perhaps because it came from the pen of a poet and soldier of fortune was deemed unworthy of serious notice. George Whetstone or Wateson—he himself spelled his name in four different ways—was a gay Elizabethan gentleman who agreeably combined literature with adventure. After wasting his substance in the approved manner he accompanied Sir Humphrey Gilbert on his ill-fated voyage to New Foundland and then did soldiering in many foreign parts. In the intervals he scribbled busily, producing among other things a play entitled “The Right excellent and famous Historie of Promos and Cassandra” which was the basis of Shakespeare’s “Measure for Measure” and also in 1598 what is probably the first work on tropical medicine, entitled: “The Cures of the Diseased in Remote Regions. Preventing Mortalitie incident in Forraigne Attempts of the English Nation.” Of the “tiñoso or scuruey” he says, “it is so ordinary at Sea as it hath been seldome seene, any Ship or Pinnice, to be foure moneths upon any voyage . . . but some of the Companie have had this Disease.” Among the causes he mentions “slothful demenor” and advises as a prophylactic measure “such as are exempted from being commanded to doo labor, to hang by the armes twice or thrice every day,” and as a remedy “Beere or white wine or Syder boiled with Graynes and Long Pepper is very singular good” as is also “a pultis of Barley meale more hot than the patient will willingly suffer it.” By these and other remedies he avers he cured all but one of eighty who came down with the disease 800 leagues from England.

It is astonishing to find even in the earliest of these

writings with what constant reiteration the juice of lemons or oranges, green herbs such as scurvy grass, brooklime, and water cress, and fresh vegetables are described as specific cures for the disease. For example, in "The Surgeon's Mate" written by John Woodall, Master in Surgery, in 1636, it is stated: "There is a good quantitie of juyce of lemmons sent in each ship out of England by the great care of the merchants and intended only for the reliefe of every poore man in his need, which is an admirable comfort to poore men in that disease . . . The juyce of lemmons is a precious medicine, and well tried; being sound and good let it have the chief place for it will deserve it the use whereof is: It is to be taken each morning, two or three spoonfuls, and fast after it two hours. Some chirurgeons, also give of this juyce daily to the men in health as preservative." The popularity of the measure before the mast was no doubt enhanced by the further considerate suggestion, "and if you add one spoonful of aqua vitae thereto to a cold stomach it is better."

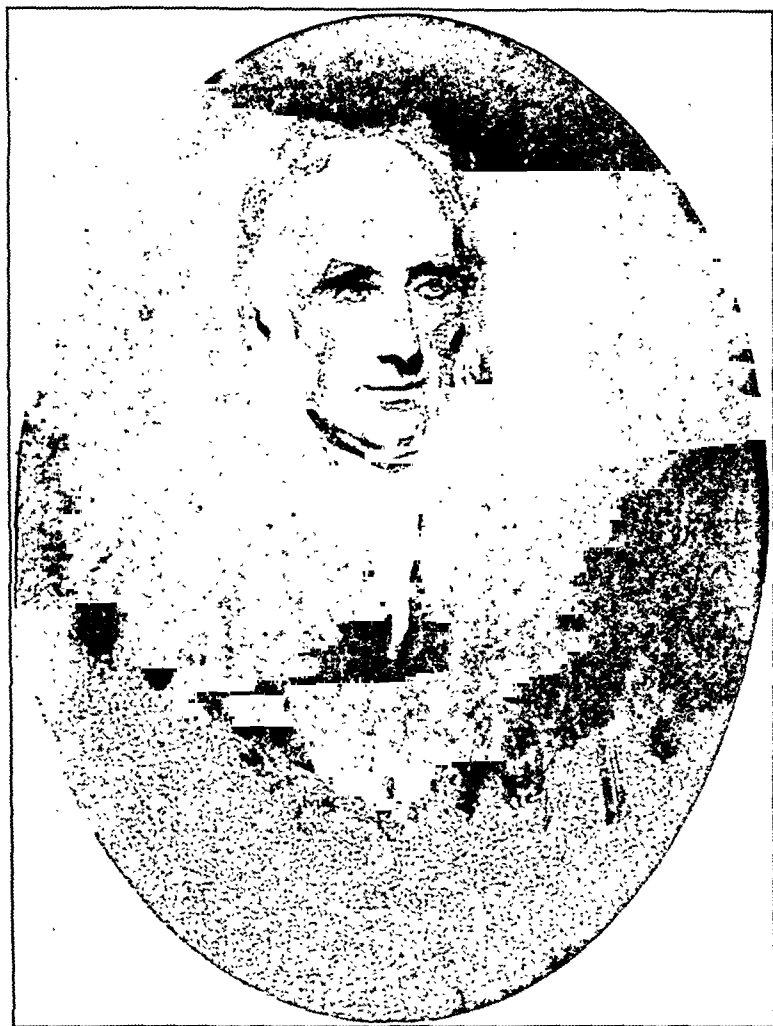
It is one of the mysteries attending the slow progress of civilization why in spite of accumulated knowledge and experience the use of antiscorbutics did not become universal and scurvy continued to be accepted as one of the inevitable accompaniments of life at sea. But toward the close of the 18th century three great naval hygienists, James Lind, Sir Gilbert Blane, and Thomas Trotter, backed by the practical experience of a famous explorer, James Cook, insisted with such emphasis on the necessary reforms that the disease was finally brought under control. James Lind, a Scottish naval surgeon, in two books entitled respectively "An Essay on the most Effectual Means of Preserving the Health of Seamen" and "An Essay on Diseases Incidental to Europeans in Hot Climates" presented ideas on sanitation and prophylaxis that were far in advance of the times. He urged the segregation of recruits before they were allowed to mix with the crews of ships in commission, the adoption of a uniform costume for the sailors as a measure of cleanliness and to prevent infection, insisted on the necessity for ventilation, of keeping

the ships dry and rendering them more wholesome by ventilation and fumigation, and made many suggestions for the improvement of the seamen's diet, quarters, and general comfort. He recognized the value of cinchona as a prophylactic against malaria, and advised persons living in "aguish places" to take daily doses of tincture of bark, to smoke tobacco, and at night to keep closed windows looking toward marshy ground—all excellent suggestions to discourage the anopheles. He also devised several ingenious methods for obtaining fresh water at sea by means of distilling apparatus that could easily be improvised, a procedure that received the sanction of the Admiralty which in 1772 ordered all ships to be supplied with the necessary equipment. His most important contribution, however, is his "Treatise of the Scurvy" and since its appearance in 1753 no equally comprehensive volume was printed on the subject until Hess published his splendid monograph in 1920. He believed that the disease is due to a combination of factors, of which the lack of fresh vegetables is predominating but not exclusive, prolonged exposure to cold and dampness being also of importance, and cites evidence from actual experience at sea in support of his view. For example, the warrant officers who have the same ration as the men but sleep in warm, dry cabins and are better clothed are but "seldom attacked by the scurvy unless upon its most virulent rages and when the common sailors have been previously almost destroyed by it." As the result of many observations he convinced himself that oranges and lemons are the best antiscorbutics, the former slightly preferable, and describes a practical experiment made on H. M. S. *Salisbury* in 1747. He took twelve scurvy patients, their cases being as similar as possible, kept them all together in the same part of the ship and on the same diet, and tried on them six different forms of treatment then in vogue. Two of them were ordered each a quart of cider a day, two others took 25 drops of elixir of vitriol three times a day and used a mouth wash acidulated with the same preparation. Two more received two spoonfuls of vinegar three times a day,

having their gruels and other foods well acidulated with it as well as their mouth wash. Two others were obliged to drink half a pint of sea water daily, another pair were given two oranges and a lemon every day, while the remaining two unfortunates had to swallow three times a day a bolus the size of a nutmeg of a terrific electuary compounded of garlic, mustard seed, radish, balsam of Peru, and gum myrrh. In six days the lucky ones who got the oranges were well enough so that one could return to duty and his companion be appointed nurse to the other members of the group, while the rest, except those who had received the cider showed little or no improvement. Lind gives detailed directions for concentrating and preserving lemon and orange juice and for the similar treatment of vegetables and various berries. Spruce beer he says is the best antiscorbutic of the fermented beverages and describes how it should be made. His remarks on the measures suitable for "remedying the inconveniencies" of spoiled provisions by indirection reveal how dreadful the food often must have been. After commenting on the difficulty of keeping the drinking water sweet, he says that there are two varieties of bad water; the first is putrid and stinking and the second so hard that it will not break peas when boiled in it, and he makes suggestions as to how these qualities may be lessened. The weevils and maggots in bread and other dry provisions are best killed by the fumes of brimstone, but even then they are found to be unwholesome for they are so caustic that when applied to the skin they raise a blister like cantharides. A better way is to put the material in a heap when the vermin will come to the top and may be taken away, stirring and repeating the heaping till as many as possible have been removed. Putrid beef and pork should have their bad qualities corrected by using plenty of vinegar, lemons, or vegetables, but he sadly comments that he is afraid that any method for sweetening putrid meat would not be easy to put into execution at sea.

Sir Gilbert Blane must be accounted one of the shining figures of a medical history. An excellently educated and trained physician, he was a man of great ability and force

of character, uniting in an uncommon degree scholarship and administrative capacity. For his personal bravery as shown during six engagements while Physician to the Fleet in the West Indies he received a pension from the Crown. Supported by his close friend Admiral Rodney he had more success than his predecessors in impressing the

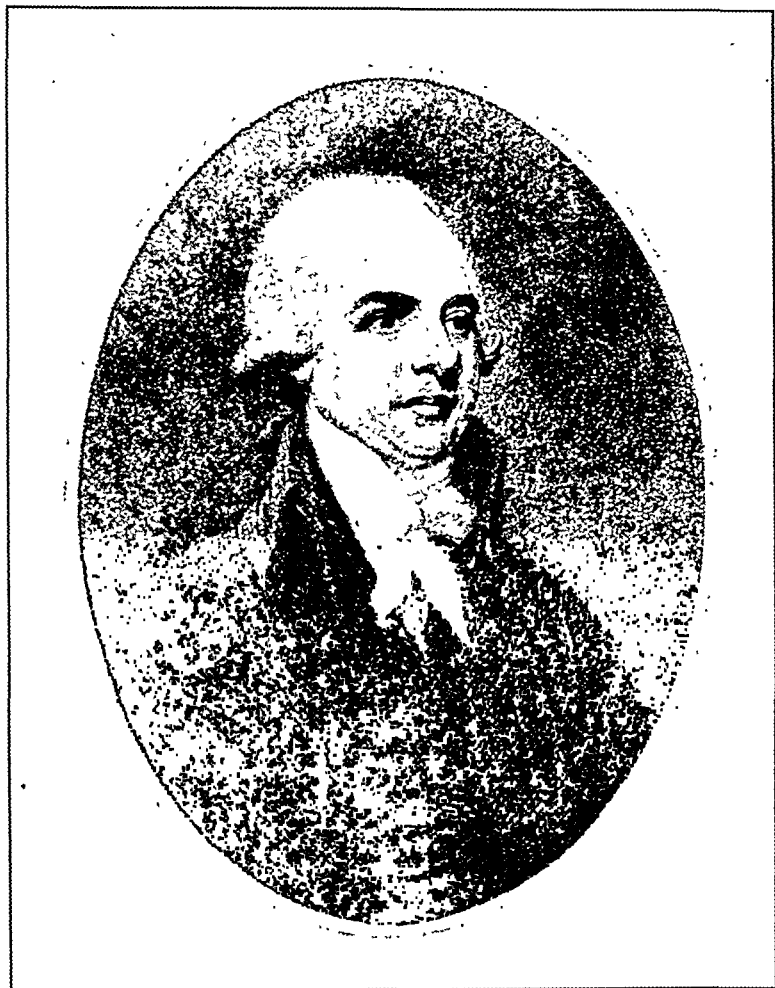


Sir Gilbert Blane, Bt., M.D., F.R.S. (1749-1834)
From an unfinished portrait by Sir Martin A. Shee, P.R.A.,
in the Royal College of Physicians of London.

authorities, and was able to introduce reforms which greatly improved the condition of the seamen and marked a new era in naval sanitation. A small book "A Short Account of the Most Effectual Means of Preserving the Health of Seamen" dated 1780 was followed five years later by an extensive treatise "Observations on the Diseases Incident to Seamen" which is a medical classic. Scurvy was exceedingly prevalent in the fleet, and in 1781 he reported officially that it was present to a degree that had never before existed in the West Indies, so that in the space of twelve months out of a force of 12,000 one man in seven died from this cause. This loss in man power was impressive even to administrative minds, the pocket nerve was touched, and the Admiralty acquiesced in the use of antiscorbutics and the sanitary regulations advocated by Blane, with the result that in a second memorial he was able to state that in 1782 the mortality had been reduced to one in twenty, and Rodney enthusiastically writes that in his own ship, the *Formidable*, owing to Blane's efforts out of 900 men not one was buried in six months. Blane constantly repeats that to Lind belongs the credit for definitely establishing the value of oranges and lemons as antiscorbutics, and states that the authors from which he has chiefly borrowed are Lind and Cook. Blane recognized the destructive action of heat on the antiscorbutic principle, and advised that when lemon or orange juice is to be kept for any length of time it should be preserved by the addition of a small quantity of spirits, for, he says: "If fire is used in the preparing it as in the form of a rob, I know for certain that its virtues are very much impaired." Blane later had a lucrative practice in London and was rewarded by a pension of a pound a day, a baronetcy, and many official appointments, and was often consulted by the government on matters of public health.

Less brilliant in the public eye and somewhat shadowed by his professional jealousy of Lind and Blane, was the career of Thomas Trotter, the third of the great naval sanitarians. While temporarily without employment in the navy he made a voyage as surgeon to a Liverpool

Guinea-man bound to the Gold Coast as a slaver. The market seems to have been depressed and there was a long delay in filling the ship, his recommendations as to the treatment and feeding of the living cargo were not followed, and there



Thomas Trotter, M.D. (1760-1832)

was a severe outbreak of scurvy which killed forty of the poor wretches crammed into the hold. On his return to England, horrified and disgusted by the experience, he

published a book "Observations on Scurvy" which was later amplified in a second edition after his appointment as Physician to the Channel Fleet had furnished further opportunities for observation. His conception of the disease was somewhat involved for he believed that it depended on a deficiency of oxygen in the blood leading to a lack of a supposed "acidifying principle" which he thought could be supplied by the administration of citric acid. While admitting the necessity of fresh vegetables as a preventative, he criticized Lind's advocacy of preserved lemon juice, which he felt was likely to be adulterated with acetic acid, and urged the adoption of concentrated solution of citric acid as a prophylactic, but this suggestion fortunately did not meet with favor. He succeeded Lind as physician to the Royal Naval Hospital at Haslar and wrote industriously on many and various subjects, for among his efforts are a tragedy "The Noble Foundling or the Hermit of the Tweed," a book of verse entitled "Seaweeds, Poems Written on Various Occasions Chiefly During a Naval Life" and an essay "De Ebrietate" on the medical, chemical and philosophical effects of drunkenness. The largest of his numerous books is "Medicina Nautica" a three decker of 1400 pages embodying his views on naval medicine and hygiene. These included the advocacy of compulsory vaccination and the adoption of a uniform for the seamen, ideas which were duly put into effect after the authorities had given them thoughtful consideration for about fifty years, the abolition of the pernicious system of impressment, improving the status and pay of naval surgeons, and many measures intended to increase the comfort of the sailors, such as the issue of soap, keeping the decks and bedding dry, and providing means of entertainment to relieve the terrible monotony of the long months at sea. He distinguished between gonorrhea and syphilis long before the difference was generally understood and opposed the injustice of compelling men infected with these diseases to pay for their treatment. At the risk, as he says, of being found murdered in the streets, he secured the reduction of the licensed gin shops in Plymouth from 300 to one-third of

that number. Altogether a kindhearted, able and courageous man, whose memory deserves a higher place than posterity has accorded it.

To these three names a fourth must now be added, that of a great commander who furnished a practical demonstration that has linked his fame with the abolition of scurvy at sea and led Oliver Wendell Holmes to say in one of his delightful medical essays that medicine had "learned . . . from a sailor how to keep off scurvy." Captain James Cook in his voyages of exploration maintained the health of his crews in a manner up to that time wholly unprecedented. On returning from his exploration of the South Seas which solved the question of the existence of a great southern continent, he presented a paper before the Royal Philosophical Society on March 7, 1776, in which he described the methods by which he had kept his men in health, and reported that the *Resolution* had "performed a voyage of three years and eighteen days, through all the climates from 52° North to 71° South, with the loss of one man only by disease, who died of a complicated and lingering illness [apparently tuberculosis] without any mixture of scurvy." For this he was awarded the Copley Medal of the Society given annually for the most important contribution to science, but later in the year when the President, Sir John Pringle, made his eloquently laudatory address of presentation, Cook was not there to hear, for he had already started on the voyage from which he was not to return. This was for further exploration in the South Seas and to attempt the discovery of the Northwest Passage from the Pacific side, and a monument on the island of Hawaii marks the site of his death at the hands of the natives. When the expedition reached England again after an absence of 4 years, 3 months and two days, the *Resolution* had lost only five men through sickness and her consort the *Discovery* not one. Cook laid especial stress on an abundance of good drinking water, cleanliness and keeping the ship and the men's clothing dry. He procured fresh vegetables whenever possible, and as other antiscorbutics depended chiefly on the wort of malt and on sourkrout and also considered portable soup or



Captain James Cook (1728-1779)

broth an essential item. Fat and oil he believed were injurious and should be replaced by sugar. Strangely enough he was not much impressed by the value of the rob of lemons and of oranges, saying that the cost would prevent their being furnished in large quantities, and that "though they may assist other things, I have no great opinion of

them alone." His success in eliminating scurvy was made possible by the excellent sanitary regulations he formulated and by the vigilance with which he himself supervised the details of their enforcement, matters which most commanders had deemed beneath their dignity.

Sourkrout, which Cook had found so valuable, was added to the Navy ration in 1780, but it required the devastating outbreak of scurvy in 1795 and the pressure of Blane's insistent representations really to rouse the administration from its torpor. In that year lemon juice was at last made a regulation issue and after the ships had been a fortnight at sea each man received a fluid ounce daily. The procrastination of the Admiralty in this matter seems incredible—through it the safety of the Channel Fleet was jeopardized, and Robert Finlayson, a naval surgeon of the time, states that: "It is the opinion of some of the most experienced officers that the blockading system of warfare which annihilated the naval power of France could never have been carried on unless sea scurvy had been subdued."

In his "Study of Sociology" Herbert Spencer after discussing what he terms "the amazing perversity of officialism" continues: "But perhaps of all such illustrations the most striking is that which the treatment of scurvy furnishes . . . Two centuries after the remedy was known and forty years after a chief medical officer of the Government [Lind] had given conclusive evidence of its worth, the Admiralty, forced thereto by an exacerbation of the evil, first moved in the matter." From that time on scurvy appeared only sporadically in the navy and became so rare that in after years Blane had the satisfaction of being able to make the statement that "because of the issue of lemon juice there are now many surgeons in the Navy of long standing who have never seen a case of the disease."

The dilatoriness of the Admiralty in acting to protect the men of the navy was surpassed by the delay in enacting regulations for the benefit of the merchant marine. In 1854 a law was passed requiring merchant vessels to supply lemon juice (so-called lime juice) regularly to t . . . rews

and in 1869 this was replaced by stricter legislation providing against the adulteration that had become prevalent and increasing the daily allowance from half an ounce to an ounce. In American merchant ships the issue of lime juice was never compulsory, but although the treatment of the men by the officers was worse than on British vessels the food was better and included such articles as dried apples, raisins, onions and potatoes, so that by the middle of the last century scurvy was seldom seen. In "Two years before the Mast" written in 1840, Dana remarks that scurvy is not so common now as formerly, but mentions that during the return voyage from the Pacific coast there were two severe cases on board his ship. Off Bermuda a supply of potatoes and onions was obtained from a passing vessel, and he dramatically describes the miraculous effect of this addition to the diet, which was so prompt that the patient most affected who had been lying helpless and hopeless in his bunk in ten days was aloft furling a royal.

Dutch seamen apparently suffered less from scurvy than those of other nationalities, perhaps because sourkrout had always been a staple in their sea ration. The contributions of French writers on the subject are not extensive, and Blane suggests that possibly the routine use of wine had antiscorbutic value. Bourdé de Villehuet in his "Manuel des Marins" of 1773 dismisses the subject by saying that no other remedies are known than staying on shore or the continuous use during thirty or forty days of the meat and soup of the green turtle. Perhaps this is an echo of Woodes Rogers' statement of seventy-five years before that in his circumnavigation he had treated his scurvy patients to the same delicacy with much benefit. Du Hamel du Monceau in his treatise "Moyens de Conserver la Santé aux Equipages des Vaisseaux" published in 1759 devotes considerable space to Lind's observations and quotes his methods for preserving lemon juice and vegetables. Monceau emphasizes the value of fresh fish, and recommends that ships be provided with fishing tackle so that it may be procured as often as possible. With true gallic interest in gastronomy he gives elaborate cooking recipes

for making some appetizing sounding vegetable stews and for preparing sourkrout and spruce beer, which latter he considers especially valuable as an antiscorbutic.

A striking chapter in the history of scurvy relates to its occurrence on the whaling ships, where it frequently added to the miseries of the already wretched life. Dana mentions it as very prevalent in whalers, Scoresby the great contemporary authority on the whale fisheries speaks of it as very alarming and Commander Wilkes of the U. S. Exploring Expedition of 1838-1842 relates that while the squadron was at Oahu several whalers arrived, all "more or less affected with this horrible disease." On one of them only three men were fit for duty, even though the vessel some time before had stopped at islands where an ample supply of fresh fruits and vegetables had been secured. Wilkes cites this as evidence that fresh provisions alone are not sufficient to prevent the disease but that rest, cleanliness and cheerfulness are essential. The arctic whalers nearly always suffered from it unless they were able to secure fresh meat from the Eskimos. One of the most graphic and extraordinary stories of privation and hardship is that given in the diary of Dr. Charles Edward Smith, surgeon to the whaler *Diana* of Hull, which in 1866 was beset in Baffin's Bay and for six months lay frozen in the ice. Of the forty-seven men on board only three escaped scurvy and thirteen including the captain, died. For his heroic and self-sacrificing services to the crew Dr. Smith received numerous public rewards and testimonials, and on his death a monument in his honor was erected in the old whaling town of Lerwick.

It is curious that although whale meat is a wholesome and palatable food much resembling beef, and of recent years a profitable industry has been developed in canning the meat of the whales taken in the antarctic by highly efficient modern methods, the whalers of former times often faced starvation and scurvy, not to mention the dreadful monotony of their ordinary diet, without making use of the food value of the huge carcasses they turned adrift. While

the meat of the sperm whale is too oily to be edible that of the right whale is perfectly good, and it was a strange ignorance or prejudice that prevented its general use in the days of the great whaling fleets.

Although during the latter part of the 19th century scurvy was seldom seen under the ordinary conditions of life at sea, polar exploring parties continued to find it a problem, and cases have occurred as recently as on both of Scott's antarctic expeditions. In 1925 the British Privy Council published a report which in the light of modern knowledge explains a remarkable outbreak of scurvy which a commission of inquiry held by the Admiralty fifty years before had failed to elucidate. This refers to the famous Nares Arctic Expedition of 1875 in the *Alert* and the *Discovery* which was equipped with every known means to ensure the health of its members, including the regular issue of an abundance of lime juice. Notwithstanding this, a sledge party consisting of 53 officers and men in eleven weeks had three-quarters of its members badly crippled by the disease, one man dying and the others remaining in serious danger for weeks. This unfortunate occurrence seemed inexplicable, for on other arctic explorations, since the introduction of antiscorbutics there was no trouble from this cause, the McClure Expedition of 1850 being considered as a perfect demonstration of the protection afforded by lime juice as during twenty-seven months in the arctic there was no scurvy in spite of great hardships and privation. The report just mentioned points out that during the earlier years of the century it was not lime juice at all, but Mediterranean lemon juice that was being used. In the middle of the century because lime juice had greater acidity it was supposed to have more antiscorbutic power and was gradually substituted for lemon juice, so that by 1870 but little of the latter was issued officially. Lemon juice, however, retains its potency but lime juice though effective while fresh loses its value on preservation and becomes practically useless as a prophylactic. In our own times Steffanson has demonstrated the value of fresh

seal meat, preferably eaten uncooked, by keeping the members of his arctic parties in perfect health with this addition to the diet.

Thus closes the story of the conquest of sea scurvy, another chapter in the unending tale of man's struggle with his environment. To our sophisticated backward glance the contest seems to have been unnecessarily prolonged and the victory unduly deferred through singular ineptitude, but after all it is no mean achievement completely to have eradicated and stricken from the roster of human ills a disease that once was one of mankind's greatest scourges and actually inflicted a death of lingering misery on more men than ever were killed by naval warfare, storm and shipwreck and other hazards of the sea combined.



THE MEDICAL INFORMATION BUREAU OF THE NEW YORK ACADEMY OF MEDICINE

IAGO GALDSTON

When one of the few remaining absolute monarchs comes to America to have one of our surgeons operate upon him, there is created a news situation of major magnitude. The fact that the potentate is English-bred and English-trained makes his choice of an American surgeon more provocative. The people at large and the medical profession are naturally prompted to ask a multitude of questions. Curiosity and interest having been aroused to a high pitch, nothing but the most detailed discussion of the nature of the malady, the operation, its technical phases, and the human interest aspects of the panorama will suffice.

When an announcement is made in the press that on the West Coast two scientists have discovered a glandular extract which allegedly has yielded exceptionally good results in the treatment of cancer, the entire country is electrified with hope, expectation and eagerness to know more. When subsequently, it is proposed to establish in New York City a so-called clinic for the demonstration of this wonder-working serum, now substantially discredited by careful tests, a serious communal situation is created with more than news implications.

When a newspaper is offered an attractive advertising contract of a quasi-medical nature and it desires at one and the same time to accept the advertisement and yet not to do violence to its own ethical code, nor to offend the medical profession, such a newspaper is sorely in need of counsel and support from the medical profession.

These random, but representative situations taken from the large experience of the Medical Information Bureau, illustrate the type of problem which it faces and which have created a living need for its service. The Medical

Information Bureau was organized in 1928. In 1930 it was taken over by The New York Academy of Medicine. Since that time the Milbank Memorial Fund has made annual appropriations toward the support of the bureau.

The credo of the Medical Information Bureau was, at its foundation, set down in the following terms:

"From its earliest days the profession of medicine has been governed by a code of ethics which has served to maintain the lofty ideals of the followers of Aesculapius. Unhappily, this code has also served to insulate the profession against intimate contact with the public.

"Whatever may have been the forces and motives that moved the early lawmakers of medicine to instill an element of secrecy and aloofness into the governing principles of the profession, certain it is that the best interests of the physician and of the public are no longer served by this attitude. The recent and phenomenal progress of modern medicine, and particularly of preventive medicine, necessitates the development of a direct and intimate channel of communication between the practitioner and the community. This is essential, not only that the public may learn to take advantage of the constant advances of modern medicine, but to the end that it may be protected against the hordes of charlatans, quacks and misguided zealots who, strange to say, thrive more than ever in this day of presumptive enlightenment.

"In appreciation of the needs of our day and society, The New York Academy of Medicine and the Medical Society of the County of New York have established a joint Medical Information Bureau. The aims of this Bureau are to facilitate the dissemination of authentic medical information on medical and public health matters, to stem and curtail quackery and to promote a better understanding between the public and organized medicine."

These objectives are largely achieved through an organization which is simple in its structure and inclusive in its capacities.

Behind the Medical Information Bureau there is a body of expert opinion gathered from a group of consultants numbering approximately one hundred. These consultants are divided into specialty sub-groups, including all of the specialist branches of medicine. The consultants were selected and appointed by the Academy of Medicine and the Medical Society of the County of New York.

Consultation with the Bureau advisors may be of an individual or group nature and may take place either over the telephone, by correspondence or in conference. A simple telephone inquiry of a "spot news" nature received, say from a newspaper, may be answered within the space of ten to fifteen minutes. The inquiry is merely referred, again by telephone, to one of the appropriate consultants and his reply is then transmitted by the Bureau to the inquiring newspaper.

Where a consensus of opinion is required the inquiry may be addressed by letter to a number of consultants and the prevailing judgment is thus secured.

When the matter at issue is of an involved nature, it may be necessary to bring the consultants together for a joint meeting. At times such a conference may include the inquirer or his representatives.

Experience has shown that the vast majority of inquiries received by the Medical Information Bureau can be handled over the telephone with a minimum imposition upon the consultants. Next in order stand the consultations conducted by correspondence. Group conferences with consultants are only rarely required.

The consultants of the Medical Information Bureau are appointed from year to year. Practically all of the original members of this advisory group have served the Bureau throughout the five years of its existence. None of them has found occasion to complain of the burdensomeness of his task.

Since its organization the Bureau has handled during this period approximately 8,000 inquiries.

When the Bureau was founded appropriate announcement of its creation was made through the press. The response from the newspapers was immediately forthcoming. However, in the early months of its existence, it was necessary to call to the attention of a variety of agencies the Bureau's proffered services.

Personal interviews with a number of editors of daily, weekly and monthly publications served to acquaint them with some of the personnel and most of the objectives of the Bureau. Their suspicions as to the possible exercise of censorship by the Bureau, could in this wise be allayed.

The number of inquiries received by the Medical Information Bureau has increased steadily. Not only have the different agencies sustainingly addressed themselves to the Bureau but their number has multiplied from year to year.

The Administrative Staff

The Medical Information Bureau is operated by a full time staff consisting of an Executive Secretary, an Assistant and a Secretary. The policies of the Bureau are determined by an Executive Board appointed by the Council of The New York Academy of Medicine and by the Comitia Minora of the Medical Society of the County of New York. This Executive Committee meets monthly at the call of the Chairman. Moot questions and new points of issue are presented to the Executive Committee for decision. A set of principles governing the relation of the physician to the press, etc., have been formulated and published.

In its credo, the objectives of the Medical Information Bureau are defined as follows: (1) "to facilitate the dissemination of authentic information on medical and public health matters, (2) to stem and curtail quackery and (3) to promote a better understanding between the public and organized medicine."

The first of these objectives, the dissemination of authentic information, has an active and a passive phase.

Through the Associated Press the Medical Information Bureau issues a daily health article which is published in approximately 400 newspapers throughout the United States. These daily articles are rather unique in character. They do not represent the opinions or judgments of an individual, but rather the harvest of medical knowledge and practice. They are issued as of the Academy of Medicine. They contain basic information on personal hygiene, physiology and disease prevention. They are not meant to teach the reader self-diagnosis or self-treatment. Correspondence from readers is not invited. Questions on self-diagnosis or treatment are not answered. When inquiries of this nature are received, the correspondent is advised to consult his personal physician or, if unable to afford one, to apply to the nearest hospital or dispensary.

It is interesting to note that many physicians are among the readers of this health column as is witnessed by letters received from them asking for medical references pertaining to certain of the items which they read.

From time to time there is released to the press of the country properly prepared abstracts on medical addresses presented at the Stated or other meetings of the Academy and of the Medical Society of the County of New York. These scientific presentations are, so to say, predigested, simplified and rendered in a language intelligible to the lay reader. Such papers may vary in nature and scope from recently developed ideas on the treatment of pernicious anemia or the prevention of dental caries to matters of a public health and communal nature.

The Bureau has served both The Academy of Medicine and the Medical Society of the County of New York in presenting to the public the addresses of their officers, particularly when these have dealt with the relationship of medicine to the public. In this wise, the Bureau has contributed to the third of its objectives, namely, the promotion of a better understanding between the public and organized medicine.

The Medical Information Bureau assists newspapers and a variety of other periodicals in what is termed feature writing. Thus, a woman editor, desiring to conduct a one-man campaign against recurrent and exaggerated ideas on the hazards and hardships of motherhood, is helped in securing essential information on obstetrics and gynecology upon which she can build her journalistic creations.

An ambitious journalist, desiring to publish the known facts on the common cold, is helped in wading through the mass of available literature, and in securing more illuminating interviews with certain of the scientists who have devoted much labor to this perplexing problem.

No less important is the inactive or passive phase of the dissemination of authentic information. From time to time newspapers receive sensational reports of alleged marvelous discoveries of cures or remedies for a variety of diseases. These reports may emanate from any part of the globe, most frequently from abroad. Newspaper editors are not in position to evaluate these announcements. They will therefore consult the Bureau to check both on the source of the announcement and its probable authenticity. It is pertinent to note that the Bureau has never insisted on the suppression of reports of questionable discoveries. News is news, even though it may emanate from Baron Munchausen. The evil effect, however, is mitigated by having subjoined to the story a statement that, according to the Medical Information Bureau the above announcement is not established, not demonstrated, unknown, questionable or highly improbable.

A number of newspapers have even seen fit to include such qualifying warnings in the sub-title or sub-heading of the announcements.

The second of its three major objectives, namely, to stem and curtail quackery, the Bureau strives to achieve by indirect methods. Quackery is so thoroughly well organized, is so widespread, and is so devious in its procedures, that a frontal attack, to be effective, would require all the re-

sources of federal, state and local government. Furthermore, quackery only thrives as long as, and to the extent that there is available a gullible and credulous public, willing to be fooled.

It is in the nature of man to revel in the amazing, in the extraordinary. The glib charlatan, the prestidigitator, the facile scoundrel, will always have his audience, whether he mounts the tailboard of his caravan or the legislator's rostrum. And he will sell his tinsel wares to a number until time makes all men wise.

One might expect that as the frontiers of science are pushed forward, there would follow as a consequence a recession of ignorance and quackery. But experience teaches us that such expectations are merely wished-for ends and not necessarily consequential results. There was a time when the quack and the minstrel were inseparable. The oil torch flickered its smoky yellow light, the burnt cork comedian strummed his banjo, and the maestro with waxed mustachios and patent leather boots regaled a gathering of yokels with a spiel on rattlesnake oil.

To-day, however, quackery has gone modern. The quack uses technical terms with which to dazzle and mislead his gullible public. The man in the street lacks the code necessary to distinguish the genuine from the spurious. If viosterol can take the place of cod-liver oil and sunlight, why not irradiated massage cream? If radio is a fact and fever can be induced by electrical apparatus, why not, too, Abram's electronics? The newspaper-reading and the radio-listening public swallows the latest discoveries on cancer, psychoses or arthritis with its breakfast. And how shall it know better? It cannot evaluate the subtle differences in the various fields of achievement. It does not appreciate that when Langley flew his flying boat and the Wrights their airplane, flying was incontrovertibly an established achievement, while when Koch announced that tuberculin cured tuberculosis, it required several years to demonstrate his error.

1. The first part of the paper is devoted to a review of the literature on the topic of the role of the state in the development of the economy. It is found that the state has played a significant role in the development of the economy in many countries, particularly in the case of developing countries. The state has been involved in the provision of infrastructure, the regulation of the economy, and the provision of social services. The role of the state has been particularly important in the case of countries that have experienced economic crises, where the state has been able to provide the necessary support to the economy.

nature of these inquiries is multiform. The request may be for the name of a general practitioner or a specialist, for the standing of a certain institution, etc., etc. Not a few bring to the Academy cures of various natures. The Bureau, of course, receives many questions from the public, to which no answer can be or is made.

Lastly, the Bureau is used by the medical profession in a variety of ways. Manuscripts prepared for publication in the lay press are submitted for review. Interviews with the press on current medical subjects are arranged through the Bureau. Problems relative to "ethical" procedures are frequently addressed to the Bureau for its counsel and judgment. Hospitals also refer to the Bureau certain of their problems arising out of their relationship with the press and public.

The Medical Information Bureau has found ample justification for its existence in the services which it has been enabled to render. But beyond this rather solid justification there is another one which is rooted in what might be called social philosophy. The systemic biologists and sociologists that flourished in the second Renaissance of the last century, were fond of comparing society to a highly organized and highly integrated living entity. Fascinated by the analogy between society and the living organism, they compared with a good deal of warrant certain social functional groups with homologous functional systems in the animal organism. The nervous system of the animal economy they compared to the so-termed intellectual group of the social organism.

There is an appealing fittingness in this analogy. Modern society is so complicated and so specialized, that for the integration of the whole it is imperative that certain groups of men dedicate themselves to the function of informing the rest of the social cells concerning what is going on in the world. In this sense the Medical Information Bureau is a part of and is contributing to the functions of what might be called the nervous system of society. If it were not for the bizarreness of the expression, the Infor-

mation Bureau might well be called the intelligence service of the medical profession, comparing it in a sense with the intelligence service of the army.

That this view of the Medical Information Bureau is not entirely fanciful is attested to by the fact that many medical associations throughout the country have shown a marked interest in the Bureau and some have established similar organizations. More than that, in the City of New York, the legal profession has followed suit and has also created an information bureau.



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NOVEMBER 3

The differential diagnosis and early treatment in acute abdominal conditions.

A consideration of what constitutes an acute abdominal condition: (a) gastro-duodenal zone: (b) gall bladder and bile ducts: (c) large and small intestines: (d) pelvis. The importance of the history and clinical examination of the patient, with a discussion of the pathological processes involved.

A summary of laboratory procedures that may be helpful.

A review of the surgical indications and a resumé of the operative procedures together with a discussion of pre-operative and post-operative treatment.

CHAS. GORDON HEYD, *Professor of Surgery, New York Post-Graduate Medical School.*

NOVEMBER 10

The doctor as marriage counsellor.

Types of premarital instruction and examination necessary to increase number of adjustments; early diagnosis of post-marital difficulties required to cure maladjustment. Rapid change in point of view on sex instruction and the physician's responsibility therein. What part of Germany's experience with 1,000 marriage advice stations we may utilize. Attitudes toward birth control, sterilization of unfit, and abortion. Summary of thirty years medical study of marriage and analysis of 1,000 case histories.

ROBERT L. DICKINSON, *Honorary Secretary of the National Committee on Maternal Health, Inc.*

NOVEMBER 17

Acute infections of the central nervous system from the standpoint of the practitioner.

Recent investigations have added much new information to our knowledge of the acute infectious diseases of the nervous system with regard to etiology, pathology and treatment. Important issues have been raised and new pathological groupings have been presented. A new inflammatory disease has been recognized in the last few years, and is becoming more and more common. Some well-known nervous diseases, which have always been regarded as degenerative processes, multiple sclerosis for example, will be considered in terms of a new perspective. Particular emphasis will be placed on the newer methods of treatment.

LOUIS HAUSMAN, *Associate Attending Neurologist, Bellevue Hospital.*

NOVEMBER 24

Differential diagnosis of pulmonary disease with special reference to tuberculosis.

The symptoms and the local evidences of disease of the lower respiratory tract are so similar in many maladies of different etiology that a thorough diagnostic survey may be needed to establish the nature of the pathological condition. The ubiquity of pulmonary tuberculosis and the protean manifestations of that disease may lead to diagnostic error unless the examiner be familiar with the usual and the unusual evidences of that infection, and unless he be informed of the conditions that may simulate it. The lecture will deal with the presentation of this thesis and with the ways of differentiating from tuberculosis some of the states mistaken for it.

CHARLES R. AUSTRIAN, *Associate Professor of Medicine, Johns Hopkins.*

DECEMBER 1

The surgical treatment of chronic arthritis.

Chronic arthritis is basically a medical disease, but not infrequently certain types of arthritis are accompanied by so much joint damage or chronic overgrowth of tissue, that medical treatment alone can hardly be expected to achieve a satisfactory result. In such cases, surgical treatment is indicated. In the lecture, the type of case suitable for such intervention is discussed together with the operative means and results of such treatment.

ARTHUR KRIDA, *Professor of Orthopedic Surgery, New York University.*

DECEMBER 8

Differential diagnosis and treatment of lymphosarcoma, Hodgkin's disease and allied conditions.

Hodgkin's disease, lymphosarcoma, leukemia and the allied conditions may affect any part of the body and should therefore be of interest to all practitioners of medicine. The more important and interesting features of these diseases will be discussed so as to bring out the differential diagnosis from a clinical point of view. The value of the biopsy and of the therapeutic-diagnostic test with radiation will be considered. Finally, the treatment by irradiation and other methods, and the general plan of management of the cases will be described.

LLOYD F. CRAVER, *Attending Physician, Memorial Hospital.*

DECEMBER 15

Acute rheumatic fever; a review of recent studies and their relation to the clinical features. (Lantern slides)

Etiology. Evidence for and against bacterial origin. Relation to pharyngitis, tonsillitis, scarlatina and other acute infections. Allergic factors. Climatic factors. Clinical phases in relation to pathologic findings. Prognosis. Treatment.

WILLIAM W. HERRICK, *Professor of Clinical Medicine, Columbia University.*

DECEMBER 22

The early diagnosis and treatment of syphilis.

A. BENSON CANNON, *Associate Professor of Dermatology, Columbia University.*

1934

JANUARY 5

Calculous disease of the urinary tract.

Distribution geographically; distribution anatomically; etiology and contributory factors; chemical composition; symptoms; diagnosis; conservative treatment; surgical treatment of kidney, ureter, bladder and urethral stones; modern controls of complete removal; postoperative attempts at prevention of recurrence; frequency of recurrence.

EDWIN BEER, *Visiting Surgeon, Mount Sinai Hospital.*

JANUARY 12

Newer work in allergy of interest to the practitioner.

Our understanding of the clinical manifestations of allergy has progressed so as to include nearly all the specialties. The practice of clinical immunology can no longer be limited to a so-called specialist in this field. An allergic influence has been proved in diseases coming under the domain of the ophthalmologist, the gastroenterologist, the neurologist, etc. Therefore, a competent practitioner must be thoroughly familiar with the varied clinical manifestations now attributed to specific hypersensitiveness. An attempt will be made to review in a brief and practical manner the present day concept of allergy, avoiding discussion of theories of interest primarily to the research worker. We will review classification, methods of diagnosis and treatment.

MAXIMILIAN A. RAMIREZ, *Director of the Department of Immunology, French Hospital.*

JANUARY 19

The tachycardias: Diagnosis and treatment.

A discussion of the tachycardias with reference to the etiological types of heart disease with which they are associated and a consideration of their differential diagnosis clinically. A consideration of various methods of treatment illustrated graphically by means of charts and electrocardiograms.

JOHN WYCKOFF, *Professor of Medicine, New York University.*

JANUARY 26

The anemias—etiology and treatment.

The role of dietary deficiency and the state of the gastro-intestinal tract in the production of anemia. The treatment of anemia by replacement therapy on a quantitative basis. The indications for liver and allied therapy and the ways to conduct such treatment orally and parenterally. The use of iron. The inhibitory effect of various factors on the regeneration of blood. The results of adequate treatment.

GEORGE R. MINOT, *Professor of Medicine, Harvard University.*

FEBRUARY 2

The endocrine glands and their relation to the diagnosis and treatment of obstetrical and gynecological conditions. (Lantern slides)

The dominance of the adenohipophysis, its relations and inter-relations with the thyroid, adrenals, pancreas and gonads. Clinical blood and urine tests showing the normal cyclical humoral conditions as well as the deviations in disease. Practical application of the tests in diagnosis. Endocrine therapy.

ROBERT T. FRANK, *Gynecologist to Mount Sinai Hospital.*

FEBRUARY 9

The clinical value of the newer laboratory tests.

A brief resumé of the clinical value of newer diagnostic laboratory examinations with their indications and interpretations is to be presented.

JOHN A. KOLMER, *Professor of Medicine, Temple University, Philadelphia.*

FEBRUARY 16

Significance and treatment of paranasal sinus infections in infants and adults.

The question of paranasal sinus diseases in adults: The localization of the lesion; its implication and significance to the practitioner. The question of focal infections; the distal and the local effects. Diagnostic data. Suggestions as to therapy; operative, non-operative. The question of paranasal sinus disease in infancy and childhood: The localization of the lesion; its implication and significance in regard to general growth and health and in facial and dental contours. The repeated colds of children. The influence of foods. Waldeyer's rings and adenitis in their relation to the diseases of the sinuses. The influence on the teeth. Diagnostic data. Suggested therapy; operative and non-operative.

SAMUEL J. KOPETZKY, *Professor of Otology, New York Poly-clinic Medical School and Hospital.*

FEBRUARY 23

The story of renal tuberculosis.

A brief resumé of the past history of renal tuberculosis, stressing the factors which have made medical opinion swing to extremes. A presentation of the modern conception of the pathology of renal tuberculosis, basing thereon our diagnosis, treatment and prognosis. The status of today and a look into the future.

ALEXANDER RANDALL, *Professor of Urology, University of Pennsylvania.*

MARCH 2

Some newer remedies.

Our sources of information about newer drugs. Some groups of newer medicines with consideration of the difference in the pharmacological action of various drugs in the same group,—hypnotics, antiseptics for internal administration, anti-rheumatic remedies, drugs for anemias, etc.

WM. R. WILLIAMS, *Consulting Physician, New York Hospital.*

MARCH 9

Disorders of adolescence, from the standpoint of the pediatrician.

An analysis of behavior problems and a comparison of those encountered in private and institutional practice. The influence of early environment and control on functional nervous disturbances developing later. The psychiatrically minded pediatrician, and the pediatrically minded psychiatrist—their relative responsibility. These problems usually simple, depending more on parental attitude and home environment than age, sex or physical status of the individuals concerned.

HERBERT B. WILCOX, *Professor of Diseases of Children, College of Physicians and Surgeons, Columbia University.*

MARCH 16

Digestive troubles of the constitutionally inadequate.

So many of the patients seen by the gastro-enterologist appear to have functional troubles, and in many of these I believe the difficulty is a constitutional and inborn weakness of the body. Sometimes the whole body seems to be inadequate to the stress of life, and at other times the nervous system seems to be particularly at fault.

WALTER C. ALVAREZ, *Associate Professor of Medicine, University of Minnesota, Mayo Foundation.*

MARCH 23

The so-called 'erythema group' of dermatoses; and urticaria. A brief survey of interest to the practitioner.

The term 'erythema' has been loosely applied by pioneers in dermatology to a large variety of cutaneous conditions. Certain non-inflammatory and certain inflammatory and exudative dermatoses are classed traditionally under the 'erythema group' of skin diseases, and do not include the acute infectious exanthems.

FRED WISE, *Professor of Dermatology and Syphilology, New York Post-Graduate Medical School.*

THE PROGNOSIS OF HEART DISEASE*

R. T. GRANT
London, England

SUMMARY AND CONCLUSIONS

1. The after histories of a group of 1,000 men suffering from heart disease have been followed for 10 years.
2. Only 13 of the 1,000 remain untraced; the after histories throughout the period are completely known for 70 per cent.
3. The diagnostic criteria used in the classification of the cases are defined. The cases are classified chiefly from two aspects (1) valve lesion, (2) exercise tolerance and cardiac enlargement.
4. Autopsy reports are available for 142 or one-third of the deaths. Comparison of clinical diagnosis with post-mortem findings shows that diagnosis of valve lesion is in general accurate. Between the clinical estimate of heart size and the weight of the heart after death the agreement is sufficiently close.
5. The after histories are characterized mainly by the following features:—
 - (a) 51 per cent are known to be alive. Of these survivors at least 42 per cent have lived uneventfully throughout and with unchanged physical signs.
 - (b) Auricular fibrillation, present originally in 10 per cent develops later in 8 per cent.
 - (c) Subacute bacterial endocarditis, present initially in 7 per cent develops later in 5 per cent.
 - (d) 47 per cent are known to have died.
6. Correlation of after history with the factors used in the classification shows that after history is to be foretold not so much by the presence or absence of valve defect

* *Delivered before The New York Academy of Medicine, May 16, 1933.*

or by the type of defect but much more closely by the degree of cardiac enlargement and by the grade of cardiac failure as estimated first by the exercise tolerance and secondly by the presence of venous congestion.

7. Prognosis is most satisfactory when based on cardiac enlargement and cardiac failure and is modified by associated findings.

8. On this basis the chief prognostic indications are:—

(a) *Good prognosis*—cases with little or no enlargement and good or fair exercise tolerance. Only about one-fifth of these cases die; almost a half of them live uneventfully and unchanged.

(b) *Poor prognosis*—cases with moderate enlargement and poor exercise tolerance. Half die within 10 years.

(c) *Bad prognosis*—cases with great enlargement or congestive failure. Few survive. The average life in the presence of venous congestion is $2\frac{1}{2}$ years.

9. The chief factors modifying these prognostic indications are:—

(a) subacute bacterial endocarditis. The average life in its presence is 6 months. It develops mainly in cases of non-syphilitic aortic regurgitation (10 per cent).

(b) the onset of auricular fibrillation influences unfavourably the general prognosis; the outlook in cases of established fibrillation depends on cardiac enlargement and exercise tolerance. In cases of congestive failure its presence influences favourably the immediate prognosis; the average life is increased to 5 years. It develops mainly in cases of mitral stenosis (20 per cent).

10. Prognosis within the groups of cases with aortic regurgitation, mitral stenosis, etc., is discussed for each group separately. Prognosis is least favourable

in aortic stenosis and syphilitic aortic regurgitation. There is no material difference in the death rate in those with non-syphilitic aortic regurgitation, with mitral stenosis, or with these lesions combined.

11. The general outlook for cases of valve defect is not so bad as is generally thought, even for syphilitic aortic regurgitation. The average life in cases with aneurysm is over 5 years and in its absence only 58 per cent of those with syphilitic aortic disease die within 10 years. Treatment with arsenic and mercury slightly but definitely prolongs life, treatment with potassium iodide does not.

LIBRARY NOTES

GIFTS FROM DR. NEUMANN

Dr. Ignac Neumann has presented to the Academy some interesting old pamphlets and manuscripts which have been on exhibition in the Library during the last two weeks of June and the first week of July. Among these are:

"An Abstract of the Patent Granted by His Majesty King George to Benj. Okell, the Inventor of a Medicine . . ." This was printed in London by J. Cluer, and reprinted in New York by John Peter Zenger in 1731.

A printed bill of mortality for Portsmouth, New Hampshire, in 1807, prepared by Dr. Lyman Spalding.

Photostat copies of various certificates given to Dr. Solomon Drowne (1754-1834), including a degree of M. A. from Dartmouth in 1771, signed by George Wheelock; a certificate from the Pennsylvania Hospital in 1774, signed by Thos. Cadwalader, John Redman and Saml. Pemberton; and one from the American Academy of Arts and Sciences, 1790, signed by James Bowdoin and Joseph Willard.

For the gift of these and other noteworthy documents we are very grateful to Dr. Neumann.

HELEN FIELD

RECENT ACCESSIONS

- Bick, E. M. History and source book of orthopaedic surgery.
N. Y., Hospital for joint diseases, 1933, 254 p.
- Dressler, W. Atlas der klinischen Elektrokardiographie.
Berlin, Urban, 1933, 50 cht.
- Dressler, W. Die Brustwandpulsationen als Symptome von Herz- und Gefäßkrankheiten.
Wien, Maudrich, 1933, 181 p.
- Epifanio, G. La radiologia del peritoneo.
Napoli, Giannini, 1932, 211 p.
- Jarrett, M. C. Chronic illness in New York City.
[N. Y.], Columbia Univ. Press, 1933, 2 v.
- King's College Hospital. Medical and Dental Schools. Medicine for dental students.
Edin., Livingstone, 1933, 206 p.
- Lusk, G. Nutrition.
N. Y., Hoeber, 1933, 142 p.
- Mayrhofer, B. Lehrbuch der Zahnkrankheiten. 3. Aufl.
Jena, Fischer, 1933, 272 p.
- Pensa, A. & Favaro, G. Trattato di anatomia sistematica.
Torino, Unione Tipografico-Editrice Torinese, 1933, v. 1.
- Romagna Manola, A. I fanciulli epilettici.
Roma, Pozzi, 1932, 186 p.
- Wood, T. D. Selections from the addresses . . .
[N. Y.], 1932, 58 p.
-

HOURS DURING THE SUMMER

From June 15 until September 15 inclusive, the Library will be open on week days from 9 a.m. to 5 p.m., on Wednesdays from 9 a.m. to 10:30 p.m., and on Sundays from 10 a.m. to 5 p.m.

DEATHS OF FELLOWS OF THE ACADEMY

ABRAHAMSON, ISADOR, B.S., M.D., 1185 Park Avenue, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1894; elected a Fellow of the Academy, May 5, 1910; died, July 17, 1933. Dr. Abrahamson was a Fellow of the American Medical Association, a member of the American Neurological Association and the Neurological Society. He was Associate Neurologist to The Mount Sinai Hospital and Consulting Neurologist to Montefiore Hospital.

BURKE, MARTIN, M.A., M.D., 147 Lexington Avenue, New York City; graduated in Medicine from Bellevue Hospital Medical College in 1876; elected a Fellow of the Academy, April 1, 1886; died, July 10, 1933.

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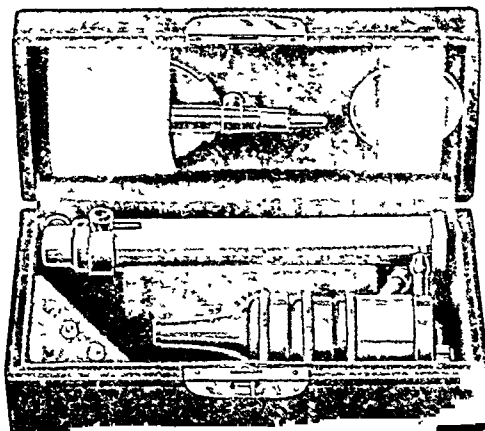
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CONTENTS

Editorial:

- The Skin as a Functional Organ of the Body,
F. H. Garrison..... 417

- Recent Developments in the Study of Tuberculosis of Interest to
Physicians, Wm. Charles White..... 433

The Bulkley Lecture:

- The Care of the Cancer Patient, Douglas Quick..... 446

Library Notes:

- Recent Accessions to the Library..... 455
- New Periodicals Added in 1933..... 457
- Hours During the Summer..... 457
- Deaths of Fellows of the Academy..... 458
-

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EDITORIAL

THE SKIN AS A FUNCTIONAL ORGAN
OF THE BODY¹

Early in the 19th century, the skin came to be regarded as a physiological organ of the body. Its four principal functions were known from classical antiquity; but physicians did not begin to act upon this assumption until latterly. The cell theory, as elaborated by Virchow, with reference to pathological formations, was the starting point of modern reasoning about the skin. Virchow, a champion of democracy within the Prussian state, conceived of the body as a kind of political organization of highly differentiated citizen-cells, some, as in the heart, or lungs, carrying on the scheme of division of labor as skilled employees in a closed industrial area or unit; others, such as neoplasms, constituting anti-social, non-industrial groups, subsisting as parasites at the expense of the social body; others, like cancer, being lawless, anarchistic elements, running counter to social welfare, and sometimes proliferating to the extent of destroying the whole social organization. Democracy, in one well-known view, is not so much a form of government as a mode of education of the people for future social and political adjustments. Government, whether of a hamlet, a city or a vast area like the United States or Russia, is not a matter of differentiation, as in the cell state, but of integration or balance of centrifugal and centripetal social forces, of debit

¹Lecture read in the Institute of the History of Medicine, Welch Medical Library, Baltimore, Maryland, on April 12, 1933.

and credit, of community welfare and independence, of the altruistic and self-regarding motives. Even the financing or feeding of an army, a city or a nation is a matter of integration, since either tyranny or anarchy in such relations may spell chaos. Beaconsfield observed that where social solidarity and cooperation are very strong, government, as such, may be unobtrusive to the vanishing point; where the social order is weak, in other words, centrifugal and heterodox, strong government is necessary. Bismarck adapted himself to the *panta rhei* view of things and inscribed upon his seal ring *unda fert nec regitur*. There is no better example of the theory that the best government governs least than the human or animal body. So well balanced and integrated are its different physiologic units, circulatory, digestive, respiratory, nervous, endocrine, that we are not even aware of their existence until they get out of order. The function of the body, as a closed physico-chemical system, is to maintain a certain constant balance of all these units with reference to one another and to the external world. An automatic balance of this kind constitutes health; imbalance disease. The immense groups of citizen-cells, each of them with an intense, individualistic life of its own, constitute the locus, in each case, of balance or imbalance within each unit or among the several units with reference to the whole organism. Nevertheless, the significance of the skin as a physiologic organ of the body, as an analogue of the heart, the lungs or the nervous system, is best understood by considering, for a moment, the individual cell.

In the beginning was protoplasm, without form and void, a structureless colloid mass, neither alive nor dead, but chemically active, and tending to concentrate at a "center of oxidation", through the establishment of chemical equilibrium between the periphery of the colloid and the investing medium. If this mass were floating in sea water, then the surface of discontinuity between the rim of the protoplasm and the investing saline medium would be the locus of formation of a new chemical substance at the interface and according to the thermodynamic laws gov-

erning the formation of liquid films, the only stable substance which could be so evolved would be the one having the least relative surface tension. It is only when the colloid acquires this limiting, semi-permeable envelope or cell-membrane, that it can be regarded as alive, in the sense of acquiring, shall we say, by act of God, the physiological functions of nutrition, metabolism and reproduction. It is only when the center of oxidation becomes similarly invested that it can function as the cell nucleus and carry on cell division. It is through the existence of this peripheral, semi-permeable envelope that a mass of nucleated or oxidating protoplasm, an organ or an organism becomes vitalized, for even blood-serum, milk, chyle, the pleural, pericardial, peritoneal, synovial and cerebrospinal fluids are physiologically dead, albeit chemically active, or more accurately, passive. In the infant, the skin weighs one-fifth of the body, in the adult 18 per cent. The epidermis weighs a pound. In the larger creatures, such as the crocodile, the tiger or the python, this protective envelope becomes extraordinarily thick and tough, merging even into the hard carapace of the turtle or such appendages of the skin as claws, hoofs, horns, tusks, nails, hair and wool, which only begin to be alive at their proximal extremities². Nothing animate or inanimate, from a protoplasmic cell to jacketed steam, can function, in the sense of doing work through proper channels, without an investing envelope, which is an analogue of the protective mechanisms of a nation with reference to the *propter invidiam* of other nations. In the view of Lord Kelvin, the living organism functions, not as a thermodynamic engine, but like an electric motor energized by a voltaic battery. In the view of Sir Oliver Lodge, the function of life, vitality or the "vital principal" is not to generate this energy, but to guide it into proper channels, as the steam in the engine is canalized to do work. Only a small amount of the free energy generated is available to do this work, and but for

²See, the interesting contribution of A. F. A. King, "What is a living animal? How much of it is alive?" in *Popular Science Monthly*, N. Y., 1909, LXXV, 289-296.

the limiting envelope, the total energy, say in the boiler, would be dissipated into space. So, too, an animal flayed of its hide, let alone a human being, would not last long. In ancient Rome, statues of Apollo flaying Marsyas stood in front of the Forum and other courts of justice, to symbolize the omnipotence of the law in inflicting punishment. Whether it would be possible to remove such a thin, fragile, sensitive envelope as the human skin, except inch-meal, is dubious, but if so, the attitude of the victim in his death agony would not be passive but more probably like that of cadavers of people burned to death in conflagrations, the *attitude de combat* of the medico-legal experts. Physicists have found that the human skin, as an insulator to prevent this dissipation of vital energy, has an electrical resistance between 1000 and 6000 ohms. That of a horse's hoof is 4,700,000,000 ohms, that of a green pea ten million ohms, that of a grain of wheat between two million and ten trillion ohms³. Apart from microorganisms, the human skin is therefore the most sensitive and frangible of all integuments or protective envelopes in animals and plants.

These facts may serve to illustrate the extreme importance of the skin as a functional organ of the body. In the light of Galen's view that "structure follows function", the limiting envelope, say of a primordial cell, came into being through a physico-chemical determinism or necessity. In Haller's day, physiology became "animated anatomy", or structure in the act of functioning, but it took years to arrive at our present view of pathology as an alteration or deflection of physiologic function. What has hindered progress has been the confusion of the functioning structure itself with the physiologic determinism which created it and keeps it going in definite channels. As Huxley observed, the cells "are no more the producers of the vital phenomena than the shells scattered along the sea beach are the instruments by which the gravitational force of the moon acts upon the ocean. Like these,

³King: *op. cit.*, 292-294.

the cells mark only where the vital tides have been and how they acted." It is comparatively easy to visualize how life may have arisen from a colloid accidentally charged with electricity and how it keeps going by what Hering called the "facultative memory" of protoplasm, the power to go on doing what it learned to do in the first remote instance; but just why all this came to pass we shall never know.

Human concern as to the individuality, vitality and integrity of the skin is evidenced in innumerable by-words and literary expressions from the earliest times. That "beauty is only skin deep" is suggested at once by the cosmetic episodes on Greek vases, the multifarious touting of cold creams and cosmetics in current magazines or the various allusions to somebody's "stale skin" in recent novels. Lecky opined that, in the general run of humanity, this cutaneous phase of facial comeliness is largely a matter of color and texture, while the aristocratic profile is an affair of bony conformation. In Richardson's *Clarissa Harlowe* (1748), we read: "Her features are so regular that were she only skin and bone, she must be a beauty;" and in *Middlemarch* (I, 9): "He looks like a death's head skinned over for the occasion." Huxley even made color of skin the criterion of race ("Race is pigmentation"), albeit the cranial characteristics of the three fundamental ethnic groups are vividly outlined in bas-relief on the Egyptian tomb of Seti. That a man is as old as his skin, as well as his arteries, is a very old physiologic observation⁴. Kipling's trite pronouncement that women are the same thing under their skins may be set off by the more scientific observation of Persius (III, 30): *Ego te intus et in cute novi*,

⁴Retterer (*Compt. rend. Soc. de biol.*, Paris, 1916, LXXIX, 1113-1118) regards the epithelium as a kind of reserve bank of potential energy of the organism, a sort of fountain of youth for the other tissues, as long as it continues to proliferate. In childhood, youth and middle life, the dermal envelope renews itself at the expense of the proliferating epidermal epithelium. In old age, when the epithelium ceases to proliferate, the epidermis dwindles and the skin wrinkles to the point of senile atrophy. The Greek and Latin words for old age and for the skin sloughed off by a snake are identical.

which is the essence of the physician's approach in diagnosis. The ancient writers, indeed, abound in acute observations on the skin, such as the *facies Hippocratica* or Lucretius (VI, 1193) on the *frigida pellis* of approaching death; or Horace on the well-groomed appearance of those who take proper care of their persons:

"Me pinguem et nitidem bene curata cute visis," I, Epist., IV, 15.

or of the fop:

"In cute curanda plus aequo operata juvenus," I, Epist., II, 29.

or the plebian hide of the churlish rough-neck:

"Quae se commendat tonsa cute dentibus atris," I, Epist., XVIII, 7.

or the whited sepulchre sometimes implicit in a comely exterior:

"Introrsum turpem, speciosum pelle decora," I, Epist., XVI, 45.

In the daily personal hygiene of the Greeks and Romans, oiling of the skin, the use of the strigil or skin-scraper and the practice of depilation by professionals, were routine features.

Such expressions of the English people as thick and thin skinned, to be in one's skin, to be in a bad skin (bad temper), to be fond of one's own skin, to come off with a whole skin, or the impossibility of jumping out of one's skin, go back to the *veterem pelliculam retines* of Persius (V, 116) and the *quiescere in propria pelle* of Martial (V, 60). Horace notes the revelation of character implied in stripping off the facial mask as *detrahere pellem* (II Sat. I, 64). "As honest as the skin between your brows" was a common expression of Shakespeare and the old dramatists to denote how much the skin is an essential element of one's being, indeed, the significance of the skin as an *arrêt irrévocable* of destiny is a commonplace in Jeremiah (XIII, 23): "Can the Ethiopian change his skin or the leopard his spots?" In the tropical and subtropical Orient, any wound or lesion of the skin is a matter of moment or concern, as being hard

to heal. The dubious relation of the skinning over of a wound to perfect healing is implicit in Coleridge's line:

"Short peace shall skin the wounds of causeless war."

Oriental feeling about this matter is plain in the book of Job:

"My skin is broken and become loathsome" (VII, 7).

"Destruction shall be ready at his side and it shall devour the strength of his skin" (XVIII, 12-13).

"My bone cleaveth to my skin and to my flesh and I am escaped with the skin of my teeth" (XIX, 20).

The pathological effects of tropical fever and famine in old age are poignantly conveyed in Job (XXX, 29-30):

"I am a brother to dragons and a companion to owls;

My skin is black upon me and my bones are burned with heat;"

and in the Lamentations of Jeremiah:

"Our skin was black like an oven from the terrible famine" (V, 10).

"My flesh and my skin he hath made old; he hath broken my bones" (III, 4).

"Their skin cleaveth to their bones; it is withered; it is become like a stick" (IV, 8).

The fifty nine verses of the 13th chapter of Leviticus, on the ritual examination and isolation of lepers and suspects of leprosy, are replete with clinical casuistry based upon appearances of the skin:

"When a man shall have in the skin of his flesh a rising, a scab, or bright spot, and it be in the skin of his flesh like the plague of leprosy; then he shall be brought unto Aaron the priest, or unto one of his sons the priests:

"And the priest shall look on the plague in the skin of the flesh: and when the hair in the plague is turned white, and the plague in sight be deeper than the skin of his flesh, it is a plague of leprosy: and the priest shall look on him, and pronounce him unclean.

"If the bright spot be white in the skin of his flesh, and in sight be not deeper than the skin, and the hair thereof be not turned white: then the priest shall shut up him that hath the plague seven days."

The general concern of humanity about the integrity of the skin is voiced by Satan in the book of Job (II, 4):

"Skin for skin, yea, all that a man hath will he give for his life;"

as well as in the jolly outburst of the Host in the Merry Wives of Windsor (III, 1) :

"Your hearts are mighty, your skins are whole."

Little was really known about the structure of the skin until the establishment of the cell theory, although observations on the coarser histology, the end organs, the pores and the perspiration had been made in the earlier period by Fabricius ab Aquapendente (1618), Malpighi (1665), Bartholinus (1666), Lenuwenhoek (1674), Albinus (1685), Morgagni (1706), Vater (1717), Boerhaave (1738) and J. F. Meckel (1753-7). The rest was done by such promoters of the cell theory as Purkinje (1833), Henle (1840), von Baerensprung (1848), Kölliker (1852), Lister (1852), Meissner (1853), Langerhans (1858-73), Huxley (1859), Bizzozero (1864), Vulpian (1871-9), Friedrich Merkel (1875-81), Unna (1876-1908), Ranvier (1877-80), Krause (1880-), Flemming (1881-4) and Hebra (1882). There was much writing on the ethnic peculiarities of the skin, particularly in the negro, down to the time of Soemmerring (1785) and even of Flourens (1837). With the cell theory, it came to be known that, in the unicellular organisms and protozoa, the cell membrane is the peripheral agent in nutrition, excretion and the molar phase of reproduction. In man, the tactile, excretory, absorptive and protective functions of the skin were known from the earliest times. Hippocrates and Galen assumed that the skin is permeable to air and the quantitative balance between perspiration, urination and alvine excretion was a matter of daily and seasonal observation. The rôle of the skin in tissue respiration was established by Spallanzani for amphibia (*circa* 1798)⁵; by Lavoisier (1777), Cruikshank (1779-95), Abernethy (1793), Seguin (1814), Aubert and Lange (1872) for man; and by Zuntz, Lehmann and Hagemann for the total skin of a horse (1894). Spallanzani showed that many amphibia take up oxygen and give off CO₂ by

⁵Spallanzani: *Memorie sulla respirazione*, Milano, 1803 (posthumous publication).

the skin after excision of the lungs and live longer than the same animals whose skin has been varnished. Lavoisier and Cruikshank found that the human skin excretes CO_2 and Abernethy that it will absorb oxygen and give off CO_2 as readily in the air as in oxygen. Eventually Pflüger and his pupils (1875-93) established the truth of Spallanzani's discovery that gas-exchange in the tissues is greater than that in the blood. Fatalities in earlier experiments on varnishing the human skin, such as that of the boy gilded as an angel at the coronation of Pope Leo X (1513) are now attributed to some poisonous effects of the varnish. In 1877, Senator showed that the whole surface of the body can remain covered with an impermeable layer for 8-10 days without any untoward effects, while animals with a larger cutaneous surface, with reference to the weight of the body, such as rabbits or horses, eventually die. In like manner, the damage done by extensive burns of the skin is not due to interference with cutaneous respiration and excretion of wastes, but to shock, changes in the blood and disturbance of temperature-regulation by destruction of the nerve-endings. The dependence of perspiration upon the innervation of the skin was discovered by Goltz in 1875 and shown by Ostromov and others to be associated with sudorific fibres in the sympathetic trunk and the spinal cord. The net result of the many experiments with atropine and pilocarpine upon the sweat-glands has been the establishment of the vagotonic and sympathicotonic diatheses and their relation to the sympathetic-autonomic system. That electrical impulses pass inward from the cutaneous glands was discovered by du Bois Reymond and confirmed by Rosenthal (1875). The cutaneous nerve supply for sensations of temperature, pain and pressure was investigated by Goldscheider (1884-5) and Max von Frey (1896). The problem of absorption by the skin occupied investigators during the whole of the 19th century. The difficulties encountered turned upon the varying reactions of the epidermis to different chemical substances, the unpredictable susceptibility or insusceptibility of different animals and different individuals and the fact that epi-

dermic reactions to many substances are negative. The classical instance, that of inunction by mercurials, was known even in the early Middle Ages. The best animal skin for absorption is that of the frog, as being in the nature of a perfect semi-permeable diaphragm. Skin-vision or the capacity of the skin of certain lower organisms to perceive light, has now been found to be true of the human skin with reference to colored light⁶.

The functions of the skin have been neatly summarized by A. J. Hall⁷ as follows:

1. The skin is our first line of defense against external injuries, including infection *via* some solution of continuity. 2. It is also the body's outpost for heat regulation; the first tissue to be chilled or overheated by changes in external temperature. 3. It is the Intelligence Headquarters of the central nervous system and the sexual apparatus, being the first to contact with external agencies, good or bad, welcome or unwelcome. 4. Apart from the mucosa, it is the only tissue visible to other eyes, hence a principal medium for attraction, repulsion or evasion by protective mimicry. It is in brief, the universal receptor organ of the body. Where the unbroken cell membrane shoulders nearly all the business of nutrition and elimination, the only function of the skin in relation to the interior of the body is the excretion of water plus certain salts and as a heat regulator with regard to domestic metabolism. The skin is thus a screen or semi-permeable diaphragm between the external world and what is going on inside the body.

Early in the 19th century, as stated, the skin was regarded and referred to as a functional organ of the body; seldom, if ever, in the matter of cutaneous reactions to disease. In disease, the skin is not so much a protective covering as an organ. The more expanded concept is bound up with present knowledge of the relations of the parasympathetic and endocrine systems, the various serologic, allergic and pharmacologic tests, the effects of light, radiation and radium on the skin, its chamæleon-like sensitivity to atmospheric and emotional disturbances, all tending to the recent view that the skin is not so much the outward and visible index of internal disease as a very delicate reacting medium to pathologic stimuli from without and

⁶W. Finkler: *Umschau*, Frankfurt a. M., 1933, XXXVII, 213-215.

⁷A. J. Hall: *Lancet*, London, 1921, I, 426.

within⁸. There is a herpes which is fatal in pregnancy and a psoriasis which coexists with pregnancy, disappears at term and may reappear sometime after the birth of the child. Facts of this order illustrate the extreme lability of the skin with regard to happenings within and without the body.

One of the most interesting aspects of the skin as a reacting diaphragm is that of the application of therapeutic agencies to the surface of the body, of which we have familiar examples in hydrotherapy, with the capillaries as a kind of auxiliary skin-heart, cupping, leeching and venesection, counter-irritation by mustard plasters, the use of liniments, salves, mercurial inunctions, the seton and the moxa, massage and intradermal injections.

About 1793⁹, Edward Jenner began to experiment with tartar emetic, and, confirming the experiences of Thomas Bradley (1773)¹⁰ and John Ferriar (1792-8), found that eruptions produced by external inunction of tartar emetic salves would often abort certain diseases. By 1882, he had eighteen case histories¹¹, with evidence of relief in insanity, melancholia, asthma, nervous, respiratory and hepatic disorders and whooping cough, in which Robertson (*London Med. Reposit.*, 1821, XV, 6-12), had got phenomenal results. Jenner reasoned that the drug exanthem

⁸For the skin as an organ, see, in particular: G. C. E. Sandrock: *De cutis dignitate semeiotica*. Marburg diss. 1831. A. Jesionek: *Biologie der gesunden und kranken Haut*. Leipzig, 1916. A. F. Hecht: *Die Haut als Test-object*. Wien, 1925. J. K. Mayr: *Die Erscheinungen der Haut bei inneren Krankheiten*. Leipzig, 1926. W. Grunow: *Die Haut als Stoffwechselsorgan*. Berlin, 1927.

⁹Jenner: *Tr. Soc. Improve. Med. and Chir. Knowledge*, London, 1793, I, 30-33.

¹⁰Bradley: *Mem. Med. Soc.*, London (1773-86), 1787, I, 247-252.

¹¹Jenner: A letter to Charles Henry Parry on the influence of artificial eruptions in certain diseases incident to the human body. 4°, London, 1822. From the initial observation of Hippocrates on malaria and paralysis to the time of Coley (erysipelas in sarcoma) and Wagner-Jauregg, the nullification of one disease by another (*De morbis salutiferis*) had arrested the attention of physicians, particularly in the 18th century.

drove out the disease externally, each papule being a messenger of good news, as in small pox, and even proposed the treatment of all diseases by artificial production of skin-eruptions. It is known that vaccination will abort whooping cough and the prophylactic effects of the seton and the moxa were ancient history to the Chinese and the Japanese. The cutaneous aspects of syphilis, tuberculosis, the exanthematous fevers, the visceral neuroses, the gouty-rheumatic and neuro-syphilitic diatheses, and many other diseases, which have reduced the erythematous, purpuric, herpetic and eczematous eruptions to mere symptoms, may be regarded as the peripheral reactions of susceptible individuals to pathologic changes within the body. Allbutt, Charcot, Osler and Libman have shown that the multiform symptoms of certain diatheses, such as the gouty-rheumatic and neuro-syphilitic, may actually pivot in space and time around erythematous and purpuric eruptions by distribution among the ascendants, descendants and collateral sibs of a given family. On the other hand, the treatment of a limited, local cutaneous eruption will sometimes cause it to spread in an embarrassing way, and this is not due, as formerly supposed, to internal causes nor even to the skin itself, but to the reactions of its involuntary nerve supply in susceptible individuals. Idiosyncrasies to the primrose (*Primula obconica*), phenylhydrazin, quinine, and other chemical substances are innumerable and unpredictable. Hall's case of a widespread inflammation from knocking over a vase of roses containing a single primrose shows, in his view, a difference between specific, local, nervous susceptibility and allergy, which affects distant parts. An eruption from a necklace of pearls, was found to be due to a waxy substance within the pearls, affecting a patient found to be highly susceptible to greasy ointments¹².

The question arises, when does a cutaneous eruption indicate that the skin itself is diseased and when is it a sign of cutaneous activity as an immunizing or excretory agent, driving

¹²Hall: *op. cit.*

the disease from within outward, as Jenner thought? One of the earliest manifestoes of the former case, the theme of most dermatologists up to recent times, is the curious pseudo-Hippocratic treatise, the *capsula eburnea* or Ivory Capsule, which deals with the prognosis of certain skin eruptions. That the skin itself has diseases all its own, can be powerfully affected by external agencies, from tropical sunlight, which produces a veritable furnace burn, to a pathogenic parasite, is self-evident. In 1918, E. F. Mueller¹³ found that intradermal injections of the non-specific protein, aolan, in chronic gonorrhœa will produce remarkable therapeutic effects upon the distant urethral membrane, which cannot be duplicated by subcutaneous, intravenous or intramuscular injections; that a positive Wassermann can be superinduced in old syphilitics with a negative Wassermann by minute subdermal injections of a non-specific protein, and more recently that intradermal injections of insulin or iletin are in like manner, more potent than injections by the subcutaneous route. His conclusion, from later experiments, is that these remote effects are produced by a reaction of the parasympathetic fibres supplying the skin rather than by the particular substance, since a subdermal injection is negative. He reasons that the rôle of the skin in the Dick and Schick and von Pirquet tests, in asthma and idiosyncrasies to food, is that of a reflector of processes deviating from the normal. The toxins of diphtheria and typhus, as well as virulent bacteria, may be detoxicated by macerated bits of skin *in vitro*. The skin has therefore a direct immunizing action, as well as a remote healing action, like that in an intradermal injection of aolan, and this independently of the blood current and the blood cells; for none of these results are obtainable by intravenous injections.

Bruno Bloch, in 1917¹⁴, produced a gradual and apparently perfect immunity from trichophytiasis by successive cutaneous vaccinations of the fungus. In 1927, he demon-

¹³E. F. Mueller: *Illinois M. J.*, Oak Park, 1925, XLVIII, 358-363.

¹⁴B. Bloch: *Cor. Bl. f. schweiz. Aerzte*, Basel, 1917, XLVII, 993-1007.

strated facultative susceptibility to *Primula*, and has since been the outstanding investigator of the allergies, anaphylaxes and idiosyncrasies of the skin.

That there is a powerful solidist immunizing property in the skin, apart from the humoral immunity attaching to the blood, may be taken as proved. It was called esophylaxis by Erich Hoffmann in 1919¹⁵. The assumption of some theorists that the skin possesses a specific internal secretion is best handled, for the present at least, by Occam's razor: *Entia non sunt multiplicanda*, since such extra hypotheses are footless, where a simpler explanation is available. The cutaneous manifestations of myxoedema, Addison's disease, gonadic disorders, pregnancy, puberty and the menopause are provisionally explicable by the relation of the endocrine organs to the sympathetic and parasympathetic nerve fibres. The allergic and endocrine reactions of the skin are legion. In Germany, patients susceptible to dust or allergy are kept in dust-proof, "allergy-free" rooms¹⁶.

Long ago, Hebra, one of the great masters of his subject, said: "We are at present at our a - b - c's in dermatology and must learn to *read* the skin." Hebra, Da Costa and Joseph Bell, the original of Sherlock Holmes, were, in fact, able to amuse themselves by telling each of their patients, in succession, his occupation and other stray facts about himself, from a rapid survey of his external appearance. This sort of thing, like Corvisart's diagnosis of approaching fatality in heart disease from an oil painting, was an ambition of the period in which physicians had to sharpen their senses in default of instrumentation. Considerable information of an empirical kind has accumulated latterly, in connection with the revival of the doctrine of the constitution with regard to the external appearances of disease or tendency to disease. Cases in point are Kretschmer's studies of the cycloid or manic-depressive and the schizoid or praecox types and Draper's observations on the facial appearance

¹⁵E. Hoffmann: *Deutsche med. Wochenschr.*, Leipz. and Berl., 1919, XLV, 1233-1236.

¹⁶A. Stühmer: *Die Haut als vollwertiges Organ*. Münster, 1931, 10.

of pernicious anaemics and victims of peptic ulcer. The earliest known representations of prehistoric man show that the body was covered by a more considerable amount of hair than latterly. Coarse, stiff, bristly hair is an almost infallible index of a strong, husky, full-blooded, thick-skinned, athletic make-up, where fine, feminine hair, a fair skin and so-called blue-blood, with a tendency to varix, connote the thin-skinned, anaemic or asthenic type. All abnormalities of the hair imply weak or bad nerves. Loss of hair may connote syphilis (alopecia), hyperfunction of the thyroid (e.g., in pregnancy), phthisis or senility. The hairy skin of the virago (virilism) is an index of adrenal assertion and a scanty beard or moustache in male or female (*Altweiberbart*) implies weak or defective gonads. Hair prematurely gray is usually an effect of nervous shock or of the impact of environment upon an unstable nervous system. Red hair labors under the imputation of disagreeable aggression and duplicity in gaining selfish ends. People of the lymphatic or heifer-like temperament, with red or blonde hair, smooth white skin, freckles and blue eyes, are liable to tuberculosis (Hippocrates). Albinos are prone to eczema. Dark (brunette) people are normally intensive and self-centred to the point of fanaticism in pressing a point and holding their own, securely sexed, better adapted to environment, to the tropics and to the impact of tuberculosis than blondes, who are more spontaneous and inconsistent, hence more liable to get into scrapes, through the restless, roving propensities of the Nordic (Havelock Ellis). The skin darkens in pregnancy. The signs of the choleric or apoplectic temperament are a sawed-off, chunky physique, a short wide chest, a full habit of body and a red face; while unduly bright eyes, a thin skin, with tendency to goose-flesh, profuse perspiration, tremor or even hæmophilia, indicate the labile, excitable, nervous and timorous natures. Degree of fatness, common to the pycnic or manic-depressive types, is regarded by Hoesslin as "a footrule of the constitution."¹⁷ Furneaux

¹⁷Hoesslin: *München. med. Wochenschr.*, 1921, LXVIII, 797; 912.

Jordan regarded a vaulted back and a smooth, hairless face as an index of the male or female shrew, while the skin of the amiable, upstanding people, "courteous-eyed, erect and slim", has a certain amount of hair, down or *duvet*¹⁸. Hypothyroids and hypogenital types have a coarse, dry skin with defective perspiration, usually a sign of psychic instability. Hyperthyroids have continual perspiration and cold extremities. The German word for scabies is *Räude* or rough skin. Wheals on the body go with bronchial asthma and œdema. Extreme susceptibility to chemicals is regarded as a sign of the exudative diathesis, which is further liable to seborrhœa of the scalp, prurigo, pruritus, intertrigo and glandular enlargements. The dartrous diathesis of the French dermatologists connotes a tendency to herpes and eczema. In a lecture of 1832, Dr. Richard Bright outlined, as follows, the facial indices of the commoner internal disorders, whereby, in the old English idiom, the patient stands "in a bad skin":

"By the eye you will learn much; many diseases have the most distinct physiognomy. The sunk and shrivelled features derived from the long-continued disease of the abdominal viscera, the white and bloated countenance often attendant on changes in the functions or structure of the kidney, the sallow and puffy cheeks of the liver diseased from habitual intemperance, the squalid and mottled complexion of the cachexia dependent upon the united effects of mercury and syphilis, the pallid face of hæmorrhage, the waxen lassitude of fever, the purple cheek of pneumonia, the bright flush of phthisis, the contracted features and corrugated brow of tetanus—all these shades of countenance and very many more which I might enumerate, with all their varieties of combination, are distinctly recognized by the experienced eye."

To "read the skin", with regard to the elaborate, colored illustrations in atlases of skin disease, is more the province of the professional dermatologist than of the clinician; but, in the light of recent knowledge, it is probable that even some of these readings may not be so simple as formerly. Like all external aspects of disease as altered physiology, they have been, in the convenient phrase of Pater, "liable from the first to an unobserved transformation."

F. H. GARRISON

¹⁸Jordan: Anatomy and physiology in character. London, 1886.

RECENT DEVELOPMENTS IN THE STUDY OF TUBERCULOSIS OF INTEREST TO PHYSICIANS*

WM. CHARLES WHITE

The tuberculous process in man and animals involves the living together of two independent organisms, the tubercle bacillus and the monocyte ameboid cell. Each of these has its own living chemistry. It would seem however as if they had certain common factors in their search for food supplies. Otherwise their close association in what we know as the tubercle would probably not be so universally found in the early history of the development of tubercles.

Under certain conditions with which we are at the present time little familiar, the living together of the two component parts of the tubercle may change in one of two directions, either the bacillus does not find a food supply adequate for its life and disappears from the scene, or it rapidly multiplies within the monocyte robbing the latter of its means of subsistence so that it dies and collections of these monocytes known as the tubercle coalesce and undergo a process known as caseation, in which substance the tubercle bacilli almost cease to exist as acid-fast rods but probably exist in some other form with a different chemistry. This caseous material then undergoes softening and usually ruptures from its surrounding environment. At this stage the acid-fast form of the organism begins again to appear. If the rupture takes place to the outside of the body and the acid-fast organism is fortunate enough to find new hosts then it goes through the same cycle. If the rupture is into some cavity or vessel within the body then the organism goes through the same process that has just been described in another part of the same body. This conjugate life of these two living cells along with the de-

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velopment of new methods of study in the laboratory has opened the door for a new attack on the tuberculosis problem.

I might interject here that the tuberculosis problem in all its ramifications is the most expensive disease problem with which man has to deal. The individual case is the most trying with which the practitioner of medicine has to deal and with our present methods it is a long discouraging problem both for the patient and the physician.

Taking now the two living factors that go into the formation of the tubercle I would first bring your attention to what we know of the monocyte or host cell and what methods are available for studying its life history and then describe to you the modern attempts in chemistry and biology to study the tubercle bacillus or infecting parasite, and thirdly, describe the influence of these studies on modern thought in connection with patients suffering with this disease. Before doing this I would like to state that the Director of The New York Academy of Medicine, Dr. Linsly Williams, has been an interested participant in these studies from the beginning.

The monocyte cell is an independent ameboid cell and one of the component cells of all vertebrate animal bodies. Within the body it has three possible forms of motion:

1. Inherent power of moving by ameboid action from place to place.
2. Movement by the blood stream.
3. Movement by lymphatic flow.

In the development of vertebrates the monocyte appears first by differentiation of cells from the mesoderm. Part of the mesodermal cells become angioblasts, giving rise to the endothelial lining of vessels and part of them remain outside this lining to develop into what is known as fixed connective tissue cells and these are apparently able to develop into monocytes or clasmatoocytes or fibroblasts under the influence of certain environmental stimuli. In

those animals which have been carefully studied, however, their main place of origin, in the fully grown animal, is in the connective tissues. They also arise in the lymph glands which, as you know, are a frequent site of tuberculosis. Cells very similar to them are produced also in the pulp of the spleen and appear in greater abundance in the splenic vein which flows directly into the portal vein going to the liver.

Amebas in nature tend to round up and rest at certain periods of their life history. Their food supply is largely bacteria. Under certain conditions they develop what is known as multi-nucleosis. That is their nuclei divide without the whole cell body dividing. In this condition they are known to us as giant cells. Monocytes in the body tend to form a similar type of giant cell in the tuberculous nodule. Their specific functions in the body are yet undecided problems. This much, however, seems certain—that they have in some way to do with the utilization of certain classes of fats and it is in this point of their function that we will probably find their chemical relation to the tubercle bacillus, which under proper conditions can grow so abundantly within the body of these cells. One fact stands out—that in neither the tubercle bacillus nor in the monocyte is there evidence that the sterols, such as cholesterol, are an important step in whatever their chemical function in connection with the fats may be.

One of the great difficulties in studying the living chemistry of the monocytes is the lack of a method to obtain them in pure culture, although it is possible that the recent method described by Rous and Beard in which they load the Kupffer cells with iron and then withdraw them from their normal environment in the liver by an electric magnet may bridge this gap in our technique.

An easier field of study from the standpoint of living chemistry is offered by the tubercle bacillus. This can be obtained in pure culture and even a pure culture developing from a single cell. This culture can be produced in great

quantities on a constant medium, it can be extracted by various solvents and the extracts from these solvents be produced in sometimes pure and crystalline form and the effects of these pure substances tried on the living normal and tuberculous animal. One of the difficult problems however in this procedure is that tubercle bacilli are members of a vast family known as the acid-fast family and the number of strains in this family, each with its peculiar chemistry, increases so rapidly that the work of analysis seems almost endless. This much however can be said, that whenever any member of this family is introduced into the animal body it always, whether it produces disease or not, has some relation to the monocyte cell. If it be a virulent strain it will rapidly multiply in these cells as the beginning of the disease process, and if it be avirulent it soon ceases to exist in the body.

For the past seven years a group of students, many of them here in New York and members of the Academy, have been interested in the study of the chemical fractions that can be isolated from the different strains of tubercle bacilli and the influence of these on the animal body. I may mention among these Dr. R. J. Anderson, Dr. Sabin and her associates, Dr. Heidelberger and Dr. Kendall, Dr. Long and Dr. Seibert, Dr. Richardson, Dr. Loebel, Dr. Shorr and Dr. Kahn.

The substances which have been isolated belong to the proteins, the phospho-lipins, the waxes and the carbohydrates. For the isolation of these substances five strains of acid-fast bacteria have been used. They have all been grown upon a common medium and a careful comparison drawn between the quantities of the substances which each different strain produces. These bacillary strains are human, avian, and bovine tubercle bacilli which are virulent, and two avirulent strains.

Such substances as have been so far isolated are common to all strains but there are very large and significant differences in the quantities of a number of these isolated

substances that each strain of organism produces. This is especially striking in the carbohydrate and phospho-lipin fractions and one may say that as the phospho-lipin increases the carbohydrate fractions decrease and vice versa. Two great objectives are sought by the analysis of these bacterial strains. First, there is the hope that we may find a law in synthesis sharply demarking the virulent strains from the avirulent strains and that by knowing the law which contributes to virulence in a bacterium we may, by introducing some substances into the body, break the chain by which a bacillus may continue to grow and kill an animal. This breaking of the chain may be conceived of in simpler terms, as, for example, starving the bacillus or enriching the powers of utilization of food supplies by the monocyte. You will readily realize that this is quite different from the old thought of chemotherapy as developed by Ehrlich in which a dose of a drug fatal to the invading parasite but harmless for the body cell was the goal. This type of therapy is exemplified by the use of arsenic and antimony for trypanosomes and treponemata and by quinine for the malarial parasite. Such a method is probably not applicable in tuberculosis. In trypanosomiasis and spirochaetosis the invading organisms have their life quite outside of the cells of the body. In malaria there is an extra-cellular cycle of the parasite during which its death is brought about, but the intra-cellular life history of the tubercle bacillus within the monocyte is quite a different story. Secondly, by knowing the physiological effects of introducing the fractions of the bacillus into the body it seems possible that other substances may be developed of known chemical activity which may be introduced into the body and stop the destructive processes of the life of the parasite—such destructive processes for example as caseation and softening of the large tuberculous aggregation of cells.

There are now known to be several proteins in the tubercle bacillus family. Some of these, when introduced into the normal animal body in their undenatured form,

produce results similar to those produced by all natural foreign proteins. This has been beautifully shown by Dr. Sabin, Dr. Seibert, and others. The animal for instance becomes both anaphylactic and skin sensitive to the reinoculation of the same protein at a later time. This protein is common to all the acid-fast family and will undoubtedly have some definite bearing in the final use of our diagnostic test known as the tuberculin test.

A curious state of affairs has been found in rural Minnesota where the skin of children living upon farms has been more sensitive to this undenatured protein from the timothy grass bacillus than that from the tubercle bacillus.

After a careful study of the literature of the early experiments of Koch with tuberculin on which he based his proclamation of a cure, it seems to me the story is something like this. When he used his first extracts of tubercle bacillus on guinea pigs and got such favorable results he probably was using the unheated extracts and therefore was introducing protein with definite antigenic power, but when he was forced to use his extracts on human beings he found it necessary to boil his extracts and thus spoiled the antigenic power of his proteins and from that time onward, tuberculin has been a boiled product and devoid of antigenic properties. It seems possible that a new era may be approaching in which experiments will be carried on with undenatured proteins of the bacillus which possess this antigenic power and probably a reconstruction of our view about the value of the extracts of the tubercle bacilli in curative medicine. In other words I think Koch was unfamiliar as we all have been with the fact that heating the unchanged protein of the tubercle bacillus destroys its antigenic value and possibly its curative value.

The general result of our studies on the pure proteins of the acid-fast family has been the production of a substance for the testing of skin-sensitiveness in the tuberculous which in the first place can be quantitatively diluted

and it is our hope that secondly it can be so diluted in solution that it will give a specific skin test for the presence in the body of virulent bacilli and perhaps we may even hope a specific test for a given strain of bacillus. One sees in the modern use of tuberculin, a procedure quite contrary to all our other good biological tests in that we proceed by increasing the amount of tuberculin until we get the maximum number of reactors rather than a procedure of diminishing the quantity until we get an evidence of specificity which would be of real diagnostic value.

The physiological action of this undenatured protein in the normal animal and in the tuberculous animal has been carefully worked out by Dr. Sabin and her associates. One of the specific cellular responses in the normal animal to the undenatured protein has been found in the study of Dr. Franklin Miller who has been able to work out the differentiation and production of one of the rare cells of the body known as the plasma cell. The influence of this protein on the temperature of the body, on blood pressure, on injury to endothelial cells and the central nervous system has been carefully studied by Dr. Sabin and Dr. M. I. Smith. The work in this field is still progressing very rapidly under Dr. Seibert looking towards the determination of the size and chemical structure of the molecule responsible for each of these physiological responses.

With our present knowledge it may be said that, in general practice in testing with tuberculin in man and animals, a positive tuberculin test is the evidence of some member of the acid-fast family growing in the body. It is not proof that this is a virulent member of the group and our studies will not be complete until we have a diagnostic substance for testing that will answer this question.

If we increase the quantity of the undenatured protein of the timothy bacillus we obtain the same reaction as that obtained from a very minute quantity of the protein obtained in the same way from the bovine bacillus. The protein obtained in our studies from the bovine strain is by far the most potent for this type of reaction. That is it

requires less of it than of the protein from any of the other strains. We have no satisfactory explanation to offer of this fact.

The Phosphatide Fraction

The fatty fractions of the tubercle bacillus have been separated by their solvents into several well-known groups such as, for example, an acetone soluble fat, a phosphatide, and a chloroform soluble wax. Early in these studies it was found that the so-called phosphatide, a phosphorus containing lipin combined with a polysaccharide, had the property, when introduced into a normal animal, of stimulating the multiplication of the monocyte cell thus probably bringing this fraction into a close chemical relation with the chemical function of this cell in the body. This phosphatide is taken up by the monocyte cell and digested slowly. The monocyte cells containing the phosphatide pack together much as they do in tuberculosis and if the dose be large enough they coalesce and undergo caseation. This change to caseation is enhanced by the introduction at the same time of the undenatured protein fraction referred to above. This property which the phosphatide possesses has been found by further analysis to belong to an optically active fraction of the phosphatide named by Anderson "phthioic acid". It is a common substance in all strains. The production of this material by the growth of the living bacillus outside of the body and its action upon cells of the body after death of the bacillus is undoubtedly related in causation to two of the prominent processes present in the natural disease. The work of providing substances which may interfere with these processes of the massing of monocyte cells and coalescence and caseous change, is surrounded with so many difficulties that up to the present very little progress has been made. As new methods appear and more knowledge accumulates it seems possible that a door will be opened to offset one or other of these most destructive chemical actions which accompany tuberculosis.

It is a remarkable thing that this family of bacilli should have the power to build from a simple medium such an

amount of phospho-lipin in combination with such a complex polysaccharide. The importance of phospho-lipin in all living cell activity has of late years been growing very rapidly. One may say that wherever life occurs these phospho-lipin sugar combinations stand out as an integral necessity in life activity. One is presented in the tubercle bacillus growth on a simple medium with an opportunity of studying the mechanism by which synthesis of phospho-lipins occurs, and the intermediate products which are established in the conversion of glucose into fatty acids and their later combinations with glycerol and phosphorus to form some higher straight chain compounds of carbon. Anderson's masterly work in demonstrating the power of this family to produce a fatty acid of twenty-six carbon atoms in chain is among the great achievements of modern bacterial chemistry. In this phosphatide fraction he has already shown the presence of butyric acid with four carbon atoms, palmitic acid with 16 carbon atoms, and stearic, linoleic, and linolenic acids with 18 carbon atoms. When one attempts to correlate this with the function thought to occur in the synthesis of fatty acids in the perfused liver from salts of pyruvic and lactic acid and the probability of further synthesis in the liver and lung, synthetic functions that may be in part inherent qualities of the monocyte cell, it is possible to let the imagination run to the belief that there is close relation in the synthetic chemistry of these two living cells and that when we understand it we may be a long way on our journey towards a cure of tuberculosis. But this is no place for imagination and I must recount only the facts as we now know them.

Waxes

The waxes which have been isolated from the bacilli produce lesions of so complex a character, when introduced into the normal animal, that little can be said at this time of their function. The waxes have, as you know, in the past been variously considered as the most important part of the bacillus. The literature is full of statements about the "waxy capsule" but so far as our studies are concerned,

there is not the slightest evidence that the wax forms a capsule rather than being part of the body of the bacillus. The wax from the tubercle bacillus is a higher alcohol. There is no evidence that waxes in nature take part in the vital processes of the living organism. They are rather protective in character against the action of water and other penetrating and degrading agents. When injected into the body this wax induces the multiplication of connective tissue cells which fuse to make foreign body giant cells around the particles. Thus, with reference to the lesions of the disease, this reaction may be considered as non-specific.

Sugars

The significance of sugars in combination with proteins and lipins in living chemistry has tremendously increased in the last few years largely through the studies of Avery, Heidelberger, and Laidlaw and Dudley. That there should be so vast a difference in the biological activity caused by the spatial difference of one hydroxyl group in a molecule, as shown by Avery and Goebel, and that there should be a difference of 10 times in the physiological activity of codeine and pseudo-codeine with only the spatial difference of one hydroxyl group in the molecule is so significant of the importance of these simple chemical differences in physiology that one has to restrain oneself in picturing the future of accurate chemical, biological knowledge.

And yet Emil Fischer, the father of modern carbohydrate chemistry, did not hesitate in his address before the German Chemical Society in 1890 to let his imagination run in these words:

"Next to the albumens the natural carbohydrates form the chief food stuff for the animal kingdom, especially for graminivorous animals, and a large number of valuable observations have been made concerning the processes they undergo in the animal body. Might it not be possible to substitute some of the artificial sugars for these natural carbohydrates, and what would be the result? Mannose so closely related to grape sugar, and so easily fermented by

yeast, might very probably form a good foodstuff, even for the more highly organized animal; and yet the slight change of substance might cause corresponding changes in the vital processes. If mannose be taken as food, will the liver produce a new glycogen, and the mammalian gland a substitute for milk sugar; and will this sugar be oxidized in the body of the diabetic? The changes in the animal organism could not but be still more decided, if one could succeed in feeding the animal body with a pentose or a heptose, or the easily fermentable nonose. One would then probably find that blood and tissues would modify their functions, that the pig and the goose would produce a changed fat, the bee a changed wax. Indeed the experiment might be carried still farther. The assimilating plant prepares from sugar not only the more complicated carbohydrates and the fats, but also, with the help of inorganic nitrogenous compounds, the albuminoids. Certain classes of bacilli have the same power. Now, if it were possible to feed the assimilating plant or these bacilli with a differently constituted sugar, they might possibly be forced to form a changed albumen. May we not then expect that the changed building material will lead to a changed architecture? We should thus gain a chemical influence on the formation of the organism which would necessarily lead to the most extraordinary phenomena, to changes of form far exceeding all that has been reached by crossbreeding, etc. Since the fundamental experiments of Wholer and Frerichs, physiological chemists have incorporated hundreds of organic substances with the animal body, seeking the products in the urine; but they, almost exclusively, made use of substances having no likeness to natural foodstuffs. The use of the new series of sugars offers a wide field of action to the physiologist, and may be attended by results far more extraordinary. Biology here stands before a problem, which has never yet been set, nay, which could not have been set until chemistry had prepared the material for the experiment."

Early in the history of these studies it was shown in England and in America that the crude polysaccharides of

the tubercle bacillus family had immense power of causing a precipitate when brought into contact with the serum of animals injected with the whole dead bacillus. I was able to show, by using one of Anderson's polysaccharides found in union with the phosphatide fraction, that there was a profound influence on the temperature and blood pressure and in the distribution of the lipin substances in the cortex of the adrenal glands, when this polysaccharide was injected into the tuberculous animal. The relation of the adrenal cortex to blood pressure and temperature has been emphasized by Cannon and by those working with extracts of this part of the gland. Dr. Sabin has made a careful study of the blood changes produced in the normal animal by use of the same substance. It is very destructive to polynuclear leukocytes. While we know it is such a poison we have so far been unable to demonstrate it in the serum of the tuberculous animal. We are sure that it must be there in some masked form. We feel sure also that it has some definite relation to the daily temperature curves of the very sick animal. Of late months there has been a growing belief that there is a daily death of a generation of tubercle bacilli in the advancing tuberculous animal coupled with the release by lysis of this poisonous substance which may be the underlying cause of the febrile cycle and that if it were possible to demonstrate its presence and cause its destruction there might be one method of controlling one of the most distressing symptoms of tuberculosis. This polysaccharide is a very stable substance requiring boiling with acid to break it up. When broken up it yields such simple sugars as mannose, inosite and d-arabinose. These simple sugars when injected into an animal have no biological significance nor do they have any influence, when put in the medium in the test tube, on the growth of the bacillus. It is only when they are united with phosphorus and nitrogen in a stable polysaccharide that their poisonous effect is produced. This poisonous polysaccharide has no influence on the normal animal and when injected appears in the urine unchanged so that one is forced to the conclusion that the tuberculous animal develops a mechan-

ism which operates in conjunction with the polysaccharide to bring about the death of animals in a few hours.

To carry farther a report of these studies which have been carried out under the Committee on Medical Research of the National Tuberculosis Association would lead us into the intricacies of chemistry and biology that would not be suitable for those not intimately and daily in association with these sciences. I trust in presenting them to you and attempting some correlation of their findings that I may have indicated to you the trend of modern research, using new implements of study, and aroused in you the hope that is in us that we may, by pursuing them, achieve the knowledge which will put in the hands of the physicians implements effective in the control of the disease in the individual patient and enable us, as a people, to control the disease which takes so great a toll of our young adult life and of those animals which we use for the maintenance of our life.



THE BULKLEY LECTURE

THE CARE OF THE CANCER PATIENT*

(ABSTRACT)

DOUGLAS QUICK

The many and varied problems confronting the family physician relative to the cancer problem extend from cancer prevention and early diagnosis to decisions on treatment measures, embracing frequently the very trying terminal care of the case in which those measures have failed. The physician in general practice sees, on the average, only three to four cases of malignant neoplastic diseases per year. He cannot be expected to be familiar with all the varied phases of allied diseases under the general heading of cancer.

The term "cancer" covers the entire field of malignant neoplasms—indicating a group of diseases allied by virtue of a common characteristic. That group of diseases is the largest in the entire field of medicine. A calm well-balanced appraisal of the actual condition should be made. The fact that some groups of malignant diseases are curable, ranging from 70 per cent to 90 or 95 per cent, is lost sight of. The gradual improvement in clinical therapeutic measures and the improved palliative measures of the past decade for the ultimately incurable are important factors. The desirability of the careful periodic health examinations by the public with the attendant recognition of pre-cancerous and early malignant manifestations cannot be too strongly urged.

Pre-cancerous Manifestations: In the light of our present knowledge of neoplastic diseases it is not enough to accept responsibility for the care of the fully developed cancer only. Many may be and can be avoided. It is true that we do not know the cause, or causes, of cancer, and more

* *Delivered before The New York Academy of Medicine, March 31, 1933, in the Friday Afternoon Lecture Series.*

than probable that this generation will be denied the secret, if such there be. We are familiar, however, with many "contributory" causes; we recognize certain "pre-cancerous" lesions. The removal or care of these is usually simple, and while not as spectacular as the cure of an established malignant growth, is in many respects more important because of relative numbers involved. The prevention of cancer by removal of a contributory exciting cause, or removal of a tissue bed (the seat of chronic inflammatory changes suitable for the development of new growth) is as much to be commended as the control of the fully developed lesion. It is by such preventive measures that true cancer control will become effective. It is only through a very substantial grasp of the entire problem by the general profession that warning signs and preventive measures will be recognized and acted upon.

In the development of malignant disease chronic irritation of tissues is a recognized contributory factor. In simple forms, this is noted on skin surfaces irritated over a period and remaining so, and is particularly true with respect to wind and sun burns; dermatoses resulting from certain industrial work in the use of drugs, or on the basis of old x-ray and radium burns of radiological workers. In addition, there are the small congenital abnormalities, warts and moles, subject to chronic irritation or degenerative changes later in life.

As a contributory factor, poor oral hygiene is most definite and pronounced; rough and irregular teeth; poorly placed fillings; neglected dentures and ill fitting plates. Over a period of years the contour of the bones of the face changes and the wearing of the same plates for many years without readjustment is a frequent source of chronic irritation. Dentists, as a group, are keen to recognize many of the early changes in the development of new growths, but many confine their activity to direct repair of teeth, and overlook the patient's general oral hygiene. Excessive smoking plays a part as a contributory factor. The relative sensitivity of the mucous membrane varies in different

individuals. Hence, it is the excess of one's individual tolerance which does the harm. The persistence of a heavy coating on the tongue is capable of far-reaching effects. As a bacterial culture-medium it excels and contributes to the infection and the reinfection of the lymphoid tissue about the pharyngeal ring.

There is no specific relationship between syphilitic manifestations within the mouth and the ultimate development of cancer. Again, as in the case of x-ray dermatitis of the skin, a suitable tissue bed is furnished for a new growth. The influence of oral sepsis on the upper digestive tract in the subsequent development of cancer is far underestimated. Simple factors of daily care of the mouth come under the eye of family physician and dentist and are too frequently overlooked. It is a duty to insist upon proper recognition of this phase of preventive medicine by their patients. With proper attention and cooperation intra-oral cancer can be largely avoided.

Pre-cancerous lesions and contributory factors toward new growth in the breast are less clearly defined than those referred to. However, many of the chronic inflammatory processes in the breast must be regarded as ultimately hazardous in a certain percentage of cases. Whether the irritation be a result of faulty drainage, the trauma of hypodermoclysis needles, the scarring from drainage of breast abscesses, or the periodic bleeding nipple, the condition at least demands the treatment that would be accorded a low-grade inflammatory process elsewhere.

Unusual uterine bleeding, particularly any bleeding beyond the menopause, is too well recognized to call for comment. However, the conditions which so frequently precede the cardinal evidence of new growth are overlooked entirely. Old lacerations of cervix uteri, with inflammatory exudates irritating surrounding tissues, are ignored. Faulty drainage of secretion from the fundus uteri is a source of chronic irritation and inflammation. Observations on races and classes of people with differing habits point clearly to the fact that every-day personal cleanliness

in habits has considerable bearing on the percentages of carcinoma of the cervix.

We have little specific information as to definite contributory causes which may be looked for or avoided on the part of the physician in connection with the upper gastrointestinal tract; that is, from the esophagus to the small bowel. Varying degrees of sensitivity in different individuals make the matter of irritation from differing types of food a relative matter. That oral sepsis may be of greater importance than the character and temperature of food taken is worthy of consideration and investigation. In the colon and lower bowel certain anatomical abnormalities are of significance. Polypi and diverticula are potential points of irritation and inflammation. Rectal bleeding should be taken seriously. A diagnosis of hemorrhoids should never be accepted without eliminating the possibility of new growth. In following the gastro-intestinal tract, the clinician should be advised against too much reliance on negative x-ray findings in the lower bowel. The relative value of this diagnostic method is much greater in the upper tract than in the lower.

Diagnosis: The vital importance of early recognition cannot be stressed too strongly. Unfortunately, too many diagnoses are made entirely too late. Cancer should be regarded as a large group of closely allied diseases. Routine health examinations, carefully and seriously done, will contribute greatly toward early diagnosis of many malignant growths. Complete examinations of the patient will advance and simplify the general problem of cancer diagnosis. Present developments in x-ray and laboratory aids allow little excuse for overlooking new growths in a routine examination. The resort to biopsy should, of course, always be determined upon reasonably. The fact remains that when in doubt, biopsy will do far less harm than leaving a malignant growth to establish its own diagnosis. Tissue removed for section need not be large. Trauma of surrounding tissues should be avoided.

In the consideration of tertiary syphilis in the differential diagnosis of many tumors, particularly those presenting an ulcerating surface, a positive Wassermann must not be taken as conclusive that the lesion is undoubtedly luetic. Biopsy should be resorted to if the clinical picture is at all questionable. Too frequently the possibility of cancer is ignored because of the positive blood reaction.

Treatment: The treatment of any malignant growth might well be considered under one of the following headings: Curative, palliative, or psychological. If there seems reasonable opportunity for complete eradication, then measures for the treatment of that particular case ought to be exerted to the limit. If palliation only is possible, every consideration ought to be given the patient's comfort from day to day. Considering the entire field of malignant disease, from simple rodent ulcer (probably 95 per cent curable) to osteogenic sarcoma and active melanoma, the average of actual curability for the entire group of malignant neoplastic diseases is probably not more than 30 per cent. A large group is left in which palliative treatment comes to be a last resort. The manner in which these are handled from the psychological standpoint is most important.

Specific Therapeutic Measures: As far as the active and direct treatment of new growth is concerned, it is almost entirely surgical, operative or otherwise. The only agents at our disposal at the present time for direct treatment are surgery, x-ray and radium. Surgical technique has reached a high state of perfection. The technical procedures incident to the application of x-rays and radium are improving, still the use of these physical agents is of such recent date that much more can be expected than has been accomplished in the past. It is in the combination of these agents with the benefits of conservative surgery that most may be expected in the future treatment of cancer. Through the assistance of radiation, the character of present day cancer surgery has been decidedly altered. Surgical procedure has been rendered safer by radiation in some of

its forms, as well as limiting the necessity for some of the spectacular and extensive operative procedures attempted in a heroic effort toward controlling a more advanced type of disease. If the disease be advanced to such an extent that complete removal is not assured, or if the general physical condition of the patient does not warrant an extensive operation, the benefits to be derived from radiation are such that the surgical steps may well be replaced by the other methods. Preliminary irradiation, followed by surgical removal, affords the patient a better chance for ultimate cure. An otherwise unsuccessful operation may be turned into a successful procedure by resorting to the implantation of radium emanation to care for that portion of the growth which cannot be safely extirpated. There should be no confusion as to the relative places of x-rays and radium in the treatment of cancer. X-radiation may be employed only for external application and for the most part over large areas. Radium, on the other hand, lends itself best to application within body cavities, over localized areas, and, most important, for direct implantation within the tissues. There is some difference, however, between the gamma rays of radium and the hardest x-rays obtainable with our present high voltage x-ray equipment. It is true that if adequate quantities of the radiation from both sources are available for comparison, the gamma rays are more effective and efficient than the best that can be produced through an x-ray tube at this time. The possibilities of the future development of x-ray therapy strongly suggest that the surface has only been scratched in the ultimate development of this type of radiation. The work in histological grading of tumors bears a relationship to the relative radiosensitivity of tumors to irradiation. The two are not in parallel. However, they serve collectively as a valuable guide in the selection of treatment methods. The fully differentiated tumors, slower in growth, less liable to secondary dissemination, are more resistant to a given quantity of radiation and it is here that surgery offers most. Anaplastic growths, tending to metastasize early and at distance, with control by extirpation slight, are fortunately

much more radiosensitive and consequently more dependent on irradiation. Beneficial effect of radiation from a therapeutic standpoint is not limited to effect on tumor tissue alone. It is quite possible that the effect on surrounding normal tissues (aptly called the tumor bed) is as important as the direct effect upon the neoplasm. The problems incident to the combination of these various methods and application to individual cases, call for special facilities and special training. This does not mean that the cancer patient should be taken away from the family physician; rather, that the special equipment and special training necessary in meeting the problems be made accessible to him who must after all carry a very considerable portion of the burden.

Constitutional Measures: Malignant diseases may and do exist in conjunction with many other grave medical conditions. Cardiorenal disease, diabetes, tuberculosis, must be cared for just as carefully, or more so, in the presence of cancer as at any other time. No strenuous therapeutic procedure, operative or otherwise should be undertaken for cancer without a careful appraisal of the patient's general physical condition quite apart from the immediate problems incident to the malignant condition. The opinion of the internists will naturally vary as to the relative value of types of supporting medication, but whether it be the administration by mouth of stimulants to digestion; intramuscular medication with iron and arsenic; stimulation of body surfaces by means of the quartz lamp — all measures that will aid to maintain the patient's general physical condition should be resorted to. The advances in the therapy of anæmias may well be taken advantage of. Liver extract and iron are almost as much a blessing to cancer therapy as in pernicious anæmia itself. The cancer patient is hanging for support on every bit of encouragement. A great deal of value is to be derived from various measures in a psychological way. Whether benefit is physical or mental the result obtained is justification for the means. The statement is incorrect that antiluetic treatment of a patient with both

syphilis and cancer is contra-indicated if treatment by irradiation is employed. It is true that aggressive irradiation treatment of the malignant growth is a very severe strain on the constitution of any patient. It is likewise true that aggressive antiluetic treatment is a considerable strain on certain organs. It will be found, however, to enhance rather than damage the irradiation response. It is advisable to save all possible time by treating the malignant growth as soon as recognized, supported by a moderate course of antiluetic treatment, completing the antiluetic treatment consistent with patient's recovery and physical ability to stand the strain. The two diseases may well coexist. It is wise, if there is uncertainty from the clinical standpoint, to go beyond the positive blood reaction and substantiate the diagnosis of granuloma or neoplasm by histological tissue examination. The damage incident to taking a small piece of tissue is negligible. The time saved in beginning adequate treatment is of inestimable value.

Palliative Treatment: This may be regarded simply as those measures incident to carrying the patient along. However, it would be better to consider it as treatment actively and seriously carried out toward the relief and control of symptoms. Prolongation of life is rarely justifiable unless attended by a degree of relief from pain and the unpleasantness of irritating discharges and foul odors. Opinions may differ as to the relative values of radiation as a curative agent, but there is little doubt as to its value as an efficient control of these symptoms. Any reasonable and worthwhile palliative operative procedure, adding to the physical and mental well-being of the patient, though in no way curative, is advisable.

The cancer case usually is of long duration and in the use of sedatives the utmost caution should be exercised. A sharp distinction should be drawn between actual pain and restlessness following a period of pain. Vigorous cleansing measures will do a great deal to lessen the need for sedatives. Frequent, careful irrigations with mild antiseptic solutions are of value as a substitute for sedatives.

measures, such as hydrotherapy, phototherapy and chemotherapy should be used to avoid drugs. The type of pain in many malignant cases is relieved better by salicylates than by opiates. A combination of salicylates with codein is far more advantageous than codein or morphine alone. Even under adverse circumstances a $\frac{1}{2}$ gr. codein with 10 grs. aspirin will give relief for a period of several hours. Morphine should be carefully avoided and employed only as a last resort for relief in the terminal stages of the disease. The use of cocaine regularly on painful surfaces is extremely dangerous, even over a short period of time, because of the amount of absorption with the deleterious effect on the patient.

The Family Physician: The physician who devotes himself largely to the care of malignant diseases too often criticizes the family physician's errors, particularly in the establishment of diagnosis and getting treatment under way. It would be much better for the specialist to give more time to further the family physician's knowledge of the problems associated with the active treatment of the patient. The family physician is better acquainted with the patient and the family and is in better position to maintain the morale of both. His active participation in the care of the case permits of the proper relationship and dignity which is the right of the general practitioner. If the specialist and the family physician keep each other thoroughly advised, each will accomplish his part of the work to the better advantage of the patient and the family.



LIBRARY NOTES

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Bologna, Cappelli, 1932-33, 2 v. in 1.
- Ward, W. R. & Smith, A. J. D. Recent advances in radium.
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München, Lehmann, 1933, 255 p.
- Wolff, E. The anatomy of the eye and orbit.
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A SELECTED LIST OF NEW PERIODICALS ADDED IN 1933

(JANUARY TO JUNE)

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- Acta brevia neerlandica de physiologia, pharmacologia, microbiologia e a
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- Archivio italiano per le malattie della trachea-bronchi esofago
Parma, vol. 1, no. 1, Ja/Mr 1933.
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- Cirugía ortopédica y traumatología.
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- Folia ophthalmologica orientalia.
Jerusalem, vol. 1, no. 1, N 1932.
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Paris, vol. 1, no. 1, Mr 1933.
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- Revue médico-sociale de l'enfance.
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Rome, vol. 1, no. 1, Ja/F 1932.
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Reading, England, vol. 1, 1932.
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HOURS DURING THE SUMMER

From June 15 until September 15 inclusive, the Library will be open on week days from 9 a.m. to 5 p.m., on Wednesdays from 9 a.m. to 10:30 p.m., and on Sundays from 10 a.m. to 5 p.m.

DEATHS OF FELLOWS OF THE ACADEMY

RICHARD TRAVIS ATKINS, M.D., 4 West 53 Street, New York City; graduated in medicine from New York University and Bellevue Hospital Medical College, New York City, in 1906; elected a Fellow of the Academy February 3, 1921; died, June 27, 1933. Dr. Atkins was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the County and State Medical Societies, a member of the American Otological Society, the American Laryngological Society, the Otological Society, the Laryngological Society, the Society of Alumni of Bellevue Hospital, a member of the Society of Alumni of the New York Eye and Ear Infirmary, Surgeon in charge of the Ear, Nose and Throat Department of Bellevue Hospital, Surgeon to New York Eye and Ear Infirmary, Consulting Otolaryngologist to Hackensack Hospital, North Country Community Hospital, Glen Cove, and St. Agnes Hospital, White Plains.

L. MILLER KAHN, M.D., 29 East 93 Street, New York City; graduated in medicine from the Memphis Hospital Medical College, Memphis, Tennessee, in 1900; elected a Fellow of the Academy April 4, 1912; died, June 24, 1933. Dr. Kahn was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the County and State Medical Societies, a member of the Society of Alumni of Lebanon Hospital, and Surgeon to Lebanon and Beth David Hospitals.



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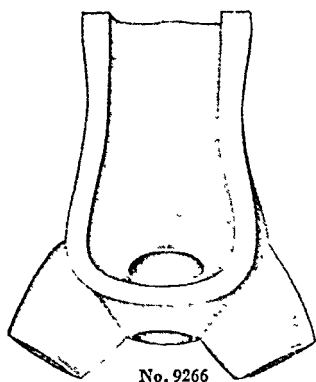
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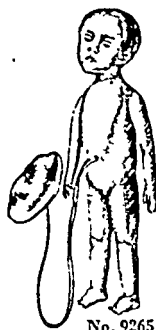
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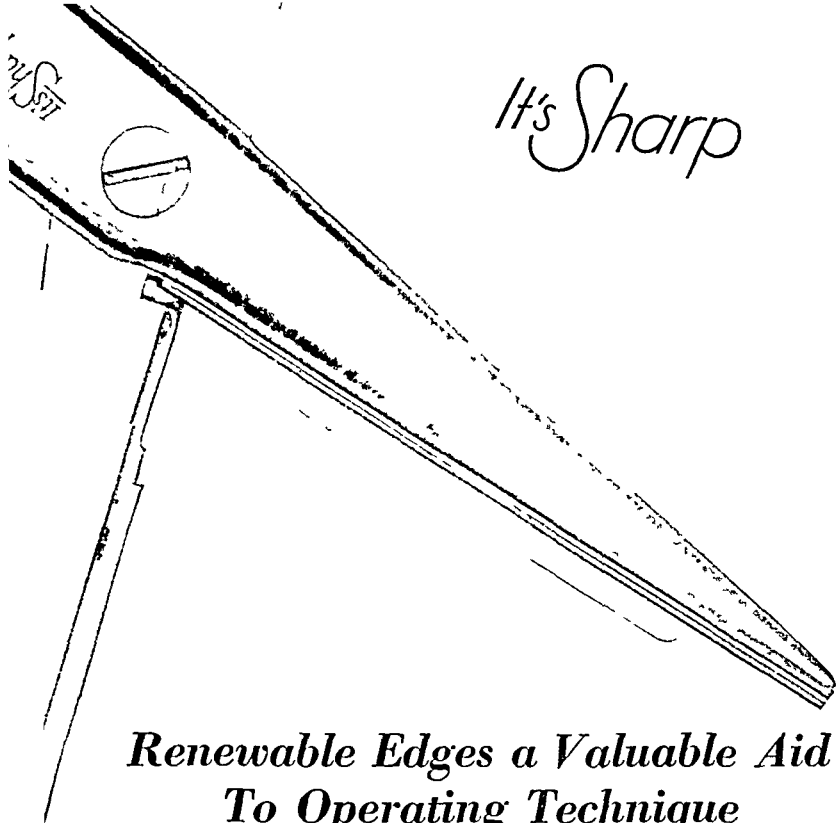
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Metabolic Disorders will be the theme of the 1933 Graduate Fortnight of The New York Academy of Medicine. Two weeks of intensive study, from October 23 to November 3 inclusive, will be devoted to this important branch of medical science. The theoretical, physiologic and pathologic phases of Metabolism, as well as of certain of the associated endocrinologic problems will be treated in a series of lectures, round table discussions and clinical demonstrations. The latter will be given in fifteen of the leading hospitals of New York City.

Among the speakers who will participate in the Graduate Fortnight are included Drs. Eugene F. DuBois, Harold E. Himwich, Walter W. Palmer, Frank H. Lahey, Donald Dexter Van Slyke, Joseph C. Aub, Ashley Weech, Dana W. Atchley, Erwin Brand, Emanuel Libman, Rollin T. Woodyatt, Priscilla White, Nellis B. Foster, Herman O. Mosenthal, William S. Ladd, H. Rawle Geyelin, Albert A. Epstein, John P. Peters, Henry C. Sherman, Samuel W. Clausen, Alfred F. Hess, Lafayette Mendel, Wilder G. Penfield, Oscar M. Schloss, Henry L. Jaffe, Charles F. Bodecker and Leopold Lichtwitz.

An exhibit will be shown in connection with the Fortnight, material having been collected from many institutions in Metropolitan New York. The various aspects of metabolic disorders will be covered in this exhibition including the history of metabolism; dietary constituents and their derivatives; drug and other therapeutic measures; general and special pathological metabolism; and laboratory methods and procedures.

The subjects will be illustrated by means of charts, graphs, photographs, microphotographs, transparencies, x-rays, gross and pathologic specimens.

The profession of the country is invited to participate in the Graduate Fortnight.

A complete program and registration blank may be secured by addressing Dr. Frederick P. Reynolds, The New York Academy of Medicine, 2 East 103rd Street, New York City.

THE MEAD JOHNSON VITAMIN A RESEARCH AWARD

Main Award—(Clinical) \$15,000

Second Award—(Laboratory) \$ 5,000

Ten physicians and biochemists of high standing have very kindly consented to serve as Judges for the Mead Johnson Vitamin A Research Award, announced in the Journal of the American Medical Association, January 30, 1932. The fact that these men accepted the Judgeships in addition to their regular duties is at once a compliment to Mead Johnson & Company, an indication of the value of the project and an assurance to investigators of unbiased, authoritative consideration of papers submitted. All papers eligible under the rules of the Award will be submitted to these men, and their judgment thereon will be binding.

It is with pleasure that we announce the Judges:

THE JUDGES

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MAIN (CLINICAL) AWARD \$15,000.00. In order to outline more clearly the object of this Award, the following re-statement of the original announcement is made:

This Award will be made to that investigator (or group of investigators) who—

1. Determines the clinical value of vitamin A (if any) in human medicine, or
2. Determines the vitamin A requirements of human beings, or
3. Determines whether vitamin A in amounts more than is contained in a well-balanced diet is of benefit in human physiology.

If, in the opinion of the Judges, no investigation satisfactorily makes any one of these determinations, the Main Award will be postponed until Dec. 31, 1936, and papers published in the intervening two years will be considered eligible.

SECOND (LABORATORY) AWARD \$5,000.00. At the suggestion of the Judges a second (additional) Award is now offered. The basis for this enlargement is in the obvious possibility that within the time limit set (Dec. 31, 1934), no suitable evaluation of the vitamin A requirements of human beings will have appeared. On the other hand, a laboratory investigation may have been published, which will point the way toward clinical evaluation.

This Award will be made on the basis of papers published or accepted for publication on or before Dec. 1934. It will be made irrespective of whether or not the Main Clinical Award is postponed.

the Main Award is postponed, that paper most adequately presenting biological, physiological and/ or thological data which may later serve for, or point the way toward an evaluation of the vitamin A ements of human beings will be selected.

If the Main Award is not postponed, that paper which contributes most to the understanding of the physiology of vitamin A and/or the pathognomy of avitaminosis A will be selected for the Second Award.

ADDITIONAL INFORMATION

For further details, investigators are referred to the original announcement published in the Journal of the American Medical Association, 98:14-15, or they may correspond with Dr. Warren M. Cox, Secretary to the Judges, Mead Johnson Research Laboratory, Evansville, Ind., U.S.A. It is suggested that the Secretary's attention be drawn to papers when they are accepted for publication. It is important that no correspondence on this subject be sent directly to any of the Judges, but be addressed to the Secretary.

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OF
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INCORPORATED 1851

JUNE, 1933

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VOL. IX, No. 6

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OF
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JUNE, 1933

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CONTENTS

Treating the Pneumonia Patient, Alexander Lambert.....	355
The Health and Welfare Resources of the City for the Physi- cians, Mr. William Hodson.....	392
Fellows Designated as Specialists.....	401
Sixth Annual Graduate Fortnight.....	402
Recent Accessions to the Library.....	403
Hours During the Summer.....	406
Proceedings of Academy Meetings.....	407
Members of Advisory Committees of Sections, 1933-34.....	414
Fellows Elected May 16, 1933.....	415
Deaths of Fellows of the Academy.....	415

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BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

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JUNE, 1933

No. 6

TREATING THE PNEUMONIA PATIENT*

ALEXANDER LAMBERT

Although pneumonia is a bacterial disease of the lungs produced by many different bacteria, when we speak of it we almost invariably mean pneumococcus pneumonia, and even though the pneumococcus pneumonia shows a very definite picture running truer to type than almost any other disease, the pneumococci which produce it are divided into many types, each type separated by a specific capsule from all the others, thus making each type of pneumococcus pneumonia a disease which may demand separate specific treatment effective in its immunization for that type alone.

Pneumonia also for decades has run a fairly steady mortality, varying in slight degrees from year to year, but basically year in and year out about the same. Certain cases, no matter what the treatment, would recover, the body resisted the infection and recovered. Youth, vigor and previous abstinence from alcohol enormously favored recovery; age, enfeeblement and previous alcoholic indulgence weighed heavily in the scale against the patient.

Ideas have changed as our knowledge has slowly developed concerning the processes that go on in the intricate struggle for existence of the patient, and the complicated methods of attack by the various types of pneumococcus. As our knowledge of this has developed, our knowledge of

**Delivered before The New York Academy of Medicine, December 16, 1932, in the Friday Afternoon Lecture Series.*

the resistance of the body to this infection has also developed, and some years ago Aschoff seems finally to have summed up the knowledge of resistance to infection in general, and to the pneumococci as well.

Aschoff some eight years ago in his Janeway Lecture in New York described as one picture the knowledge at that time of the reticulo-endothelial cells in the body as endowed with resistance to the various infections. We cannot go too much into detail, but briefly the reticulo-endothelial cells lie in the lining of the sinuses of the lymph nodes, in the blood sinuses of the spleen, in the blood capillaries of the liver globule, that is Kupffer's stellate cells, and in the capillaries of the bone marrow, the adrenal cortex, and the hypophysis.

Later it has been found that there are also cells in the lining of the lung tissue, which appear there as the macrophagic cells described by Metchnikoff, which are concerned only with the defense of the organism. These macrophages, that is the histiocytes lining the alveoli in the lungs, belong really to this reticulo-endothelial cellular system, and are concerned in their defense of the organism with ingestion of bacteria, which have made their way by the air passages into the lungs, these macrophages in return producing antibodies, and forming antitoxins.

Since these ideas of Metchnikoff's were brought forward, the defensive conception of these reticulo-endothelial cells has broadened greatly. It is believed that they possess a dominating role in the formation of bile, and in metabolism of water, lipoids, iron, cholesterol, etc.; it is now thought that the connective tissue which we formerly believed to be only a silent frame work, is also endowed with highly differentiated functions, even perhaps having properties of internal secretion.

Fried and Rose have lately emphasized that these macrophage cells in the lungs come from a different embryologic layer than the bronchi. These are mesenchyme cells, and the bronchial tissues are of endodermal origin. The

bronchi are epithelial tissues, but the cellular covering of the capillary vessels is from the mesenchyme, the bronchi really pushing their way through the tissues forming the alveolar process of the lungs, and the alveoli do not grow as buds from the bronchi. These macrophages are stimulated by extraneous substances coming into the lungs with the air, such as dyes, or oils, or other substances, they proliferate and separate from the alveolar walls, and form a part of the exudate. They form exudates in diseases other than pneumonia as the heart disease cells, so commonly found in the lungs with the severe types of the mitral stenotic lesions of the heart. In examining lungs in different diseases, Fried has reported that he has found a few instances of human lungs which showed the same characteristics noted in the lungs of animals during experimental work.

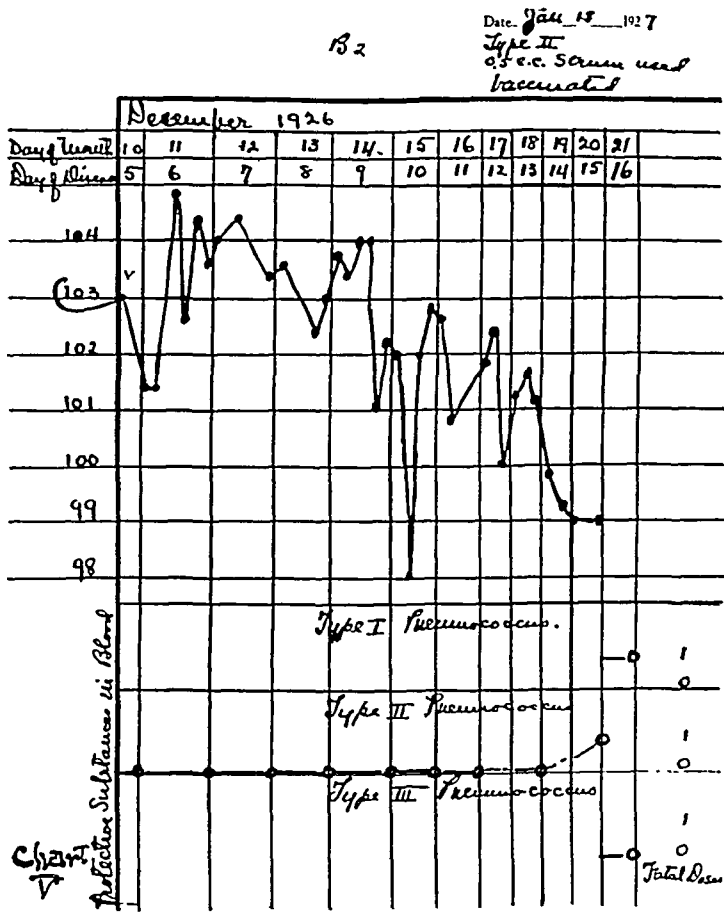
Recently in our work in Bellevue on pneumonia, supported by the Baruch Foundation, Dr. Curphey drew our attention to the lungs of two patients dying of Type 1 pneumonia. Both these patients were very stout women, who had a severe Type 1 infection with bacteremia, but who recovered from their bacteremia, after treatment by the serum, and yet died. The exudate in their lungs was made up chiefly of these macrophagic cells, quite different from the usual pneumonic exudate of fibrin, red blood cells, leucocytes, macrophages and pneumococci. It was as if after the infection was overcome a tremendous defensive out-pouring of these cells had taken place as a defense reaction.

I have gone so fully into these details of defense of the organism in order that we may understand more clearly what is taking place in the struggle for existence in pneumonia, when we use the specific types of serum, or vaccines, that in certain instances are proving such valuable help in overcoming this disease.

It is not the simple problem of thinking of the lungs as a mere bag lined with epithelial cells, in which there is a constant influx and out-pouring of air, with the percentage

of oxygen the essential feature to be furnished the patient while antibodies are poured in, or the germs finally win out; it is vastly more than that, and a great deal of the struggle for existence takes place in the lung itself, much more than we formerly had believed.

The antibodies in the blood, as we shall see, are present, but vary greatly in amount whether a man live or die, as the case may be, but they do not appear in great abundance until the 5th day of the disease, or even until the crisis has occurred. Patients may live and recover with a varying amount of deficit of antibodies in the blood.



Vaccinated Case: Recovery With no Antibodies in Blood Until After Crisis Occurred.

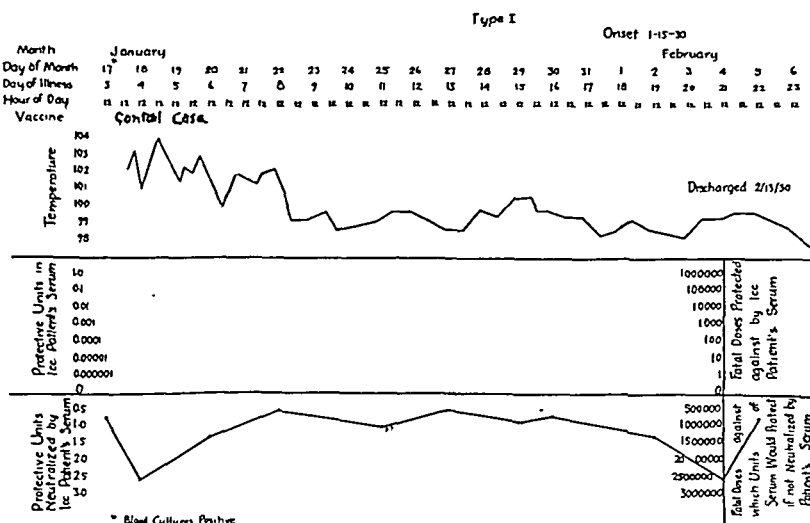


Chart XVIII Control Case: Recovery, Definite Absence of Antibodies Throughout First 23 Days of Disease and Positive Bacteremia on Third and Sixth Day.

It is a noticeable factor that in the specific treatments of pneumonia, whether by vaccines, or by serum, the first three days of the disease is the precious time, in which injections of serums or vaccines must be made to be most fully effective, and to give the patient the full advantage of their action. After that time, there seems to be a closing down of the area occupied by the pneumonic exudate, and whether it be that fibrinous plugs occur in the capillaries, which later dissolve, or whether it be that the exudate itself within the alveoli has become so abundant that it completely closes the capillaries, the effect apparently is the same.

The later struggle for existence must take place outside of the area of infection, restricting greatly the possibility of active interference with the infected area, affecting greatly in a mechanical manner, possible action of antibodies given in large doses, and of sufficient amount, which if given in the early days of the morbid processes could have been of great benefit, but are now rendered useless from

their inability to reach the area in which the morbid processes are taking place which they were intended to influence.

The various pneumococci are specific, in that each variety possesses a capsule formed of a specific, separate form of polysaccharid and reaction to this specific capsule is the basis of the antibody produced by the body in its struggle against the pneumococcus. Each antibody can thus attack only its own corresponding type of pneumococcus, and the reactions, thus brought about are too intricate in detail to interest us here.

Broadly speaking, if the antibody can break through the resistance of the pneumococcus by removing in some way the capsule of the polysaccharid, the remaining body of the pneumococcus apparently readily undergoes phagocytosis, being engulfed by the leucocytes, and other cells. The reaction against the body proteins of the pneumococcus then easily takes place. The therapeutic serums thus possess large amounts of ready made antibodies to be poured into the circulation of patients overcome by pneumococcus infection, and who are unable to manufacture with sufficient rapidity adequate amounts of antibodies to protect themselves.

Vaccines, on the other hand, seem to produce a stimulation in the reticulo-endothelial system, and rely on the ability of the patient under their stimulation to produce sufficient antibodies to overcome the infection.

Recently Avery and Dubois have found a bacterium in bog water of a peat swamp, which produces an enzyme which will dissolve in the test tubes, or in the animal body, the capsule of Type 3 pneumococcus, which for a long time has been especially resistant to all forms of serum, and to the special defense reactions of the body. This enzyme has been injected into the peritoneum of mice, and into the body of rabbits following the intradermal infections of these animals. The solution of the capsule of the pneumococcus occurs also in the animal body, and recovery takes

place. Whether or not this can be applied to man is not yet reported; it adds, however, a new possible mechanism to the struggle of immunization of human beings during their attacks of pneumonia.

The serums so far successful in the treatment of pneumonia in man are those of Types 1, 2 and 7. Since the serum for Type 1 was first brought forward by Cole, Felton has contrived a method of separating the active antibodies in the serum from the parts unessential to immunization, and using this concentrated form of antibodies; improvement in the resulting cure of Types 1 and 2 pneumonia has been distinctly more satisfactory.

There have been reported some 1200 cases of Type 1 pneumonia treated with the serum, and the mortality has been reduced from 31 to 20 per cent, and in one group reported by Cecil and Plummer, in which the serum was given in patients sick less than 3 days, there were 103 patients with a mortality of only 11.7 per cent against a control set of 97 cases with a death rate of 26.8 per cent. Thus in favorable cases the treatment is extremely satisfactory.

Of course it goes without saying that this necessitates that the patients be in the position where typing of the pneumococcus can take place quickly and early, and the precious early first 72 hours of the disease can be used for the giving of the antibodies, and the decision made whether it is Type 1 or Type 2 serum which must be pushed; all these give further advantage to the patient, producing this gratifying result.

There are certain differences between Types 1 and 2 pneumonia when treated with serum. In Type 1 in a certain number of cases when treated early the disease can be aborted, but this is not true in Type 2 pneumonia, although with the serum the Type 2 pneumonia patient feels better, is less toxic, and the fever tends definitely to be lowered, but the sudden cessation of the disease after the serum seems rarely to take place.

Sutcliffe and Finland in reporting some 239 cases treated with Type 1 serum, state that in patients coming in after the fourth day of the onset of the disease, there was no great difference in the average course of the disease between the treated and untreated patients. But in those patients coming in early with Type 1 pneumonia within 30 hours after being treated, there was a marked difference, and there was a distinct tendency to the further shortening of the average duration of the disease when measured with the average duration of the controls, and this tendency is the more distinctly marked the earlier the serum has been given.

Dr. Baldwin also reports satisfactory results in treating Type 2 pneumonia in the New York Hospital, in which he has reduced the mortality from 51 per cent down to 25 per cent.

While this was only in a small number of patients, 38 receiving treatment, and with 29 controls, it was over a period of 4 years, so that the antibodies for Type 2 pneumococci, as prepared by Felton, can be also used with marked benefit in this serious form of pneumonia.

Baldwin in dealing with Type 2 pneumococcus found that there was a marked benefit to be derived from the early treatment, in the first 72 hours, but contrary to the general opinion, records his experience that even in patients who came into the hospital very late with the disease of Type 2 pneumonia, and were seriously ill, when the antiserum was pushed, these patients responded well to the treatment, when the treatment was continued until all evidence of the symptoms of the disease had ceased, but under these circumstances large amounts of the antibody solution must be given. We are dealing with a treacherous type of pneumonia in the No. 2 type, which tends constantly to recur, after it has shown favorable indications of subsiding. Type 2 pneumonia seems to be the most serious infection of all the types of pneumococcus; its marked tendency to spread and recur, its high mortality, and the inability of the antibody to abort it in the early hours of

its infection, all combine to manifest the seriousness of this infection.

Of course the patient with bacteremia in pneumonia is a much sicker patient than one in which this condition does not develop. In the Type 2 pneumonia this bacteremia is liable to occur at some stage of the disease in 33 per cent of the patients, and Cole and his associates found that in such cases of bacteremia, the mortality rose as high as 73 per cent.

Cecil, Baldwin and Larsen demonstrated the pneumococcus bacteremia in 43 1/3 per cent of their series of cases, and the mortality in these was as high as 90.3 per cent.

The value of the serum is clearly shown by the fact, that when treated early the patients show a distinct tendency, not only to overcome the bacteremia when it is present early in the disease, but to prevent its occurrence. This sweeping statement I believe to be true as the many reports of the different observers are studied.

Neither serum, nor any other treatment is infallible in this regard, but the serums are effective in many cases that would otherwise be lost.

The dosage of serum as recommended by those who have used it abundantly, is that within the first 24 hours from 50 to 100,000 units of the antibody solution must be injected intravenously, depending upon the severity of the clinical symptoms. Both serums can be used in the early dosage, if the patient is severely ill, while one is waiting for the type to be tested; even though either serum may be useless, it is not harmful.

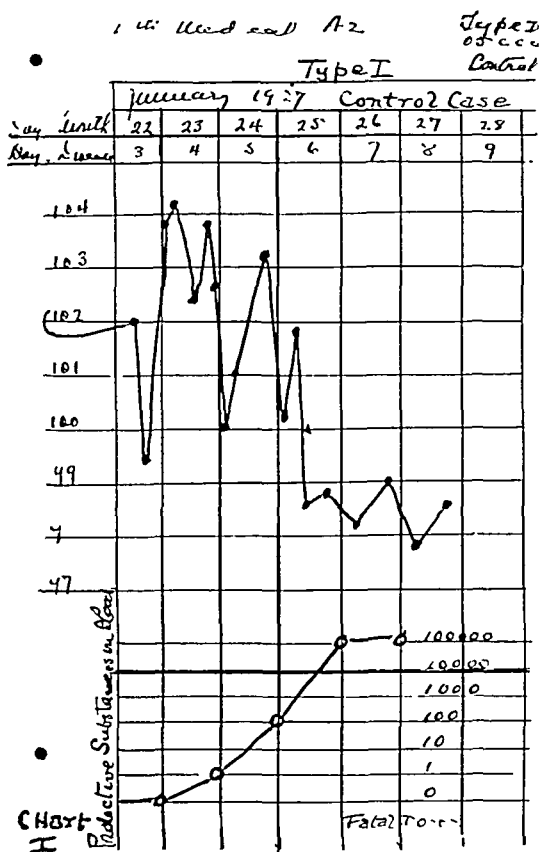
If on the following day the temperature is down, and the patient appears clinically much improved, at least 20,000 units should be given to maintain the balance. If the temperature remains high, and improvement has not occurred, from 50 to 100,000 more units should be given, and a similar daily dosage should be maintained until an im-

proved prognosis seems assured. These injections should be given every 8 to 12 hours.

Recently there has been put upon the market commercially a serum against Type 7 pneumococcus. As you know, there have been 30 new types of pneumococci separated by the New York Health Department from the collection of types in former Type 4, and their various antisera have been developed in small amounts. This Type 7 occurs in about 5 per cent of the lobar pneumonias, and presents also the peculiarity of being hæmolytic. This serum has already been used by Dr. Bullowa in a small number of cases, the death rate of those receiving the serum was reduced to 6.6 per cent; the average mortality with this pneumococcus type previously has been from 25 per cent to 31 per cent.

For many years the medical profession had a strongly formed opinion that vaccines were meant for prophylactic use in medicine, and not for any curative effect, especially in acute disease. It was believed that if the dead bodies of bacteria were injected in the body during a sickness, there would be an overwhelming amount of toxins put into the body, that would surely increase the injury from which the patient was suffering. In pneumonia, this seemed to be particularly true, because of the acuteness of the disease, and the shortness of its duration.

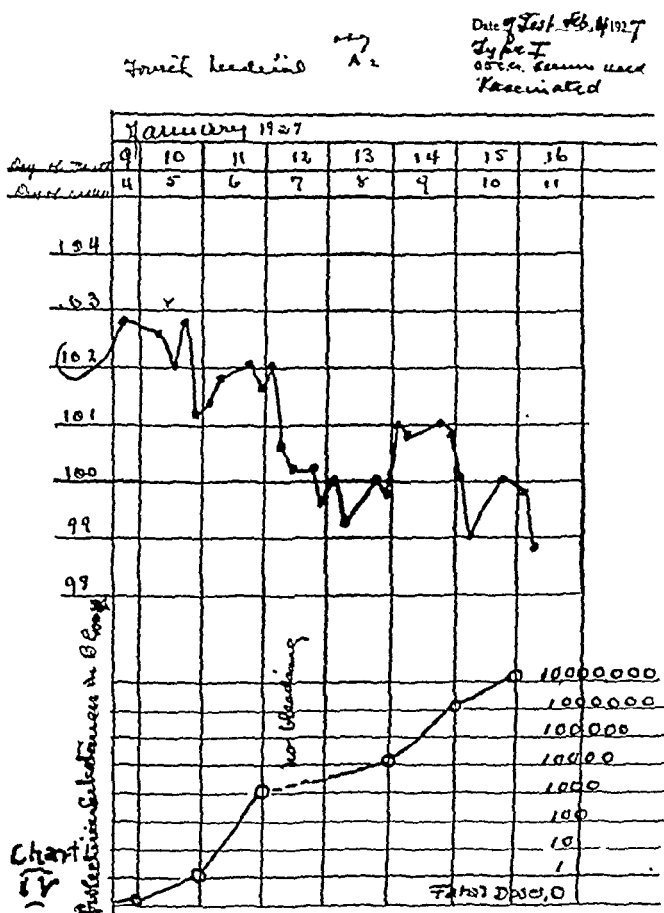
The work of Goodner shows that when a skin lesion is made in rabbits with virulent pneumococci, there are certain close pathological and clinical analogies to human pneumonia. It was found that, as in lobar pneumonia when the animals occasionally recovered, this recovery was accompanied by the appearance of antibodies in the blood. This had also been studied in human beings with lobar pneumonia, and it was known that these antibodies appear usually about the 5th day, and often at or about the crisis of the disease, which is, in the majority of patients, from the 7th to the 9th day.



Control Case: Showing Recovery With Increasing Production of Antibodies

If rabbits were given an intradermal inoculation of pneumococci 5 days after they had received the vaccine injections, they developed practically no disease locally, or systemically. If they were infected 3 days after the vaccine injection a typical course of fever occurred which on the following day subsided by crisis, and recovery took place. However in the rabbit, if the vaccines were given after the infection, the course of the disease was not materially affected.

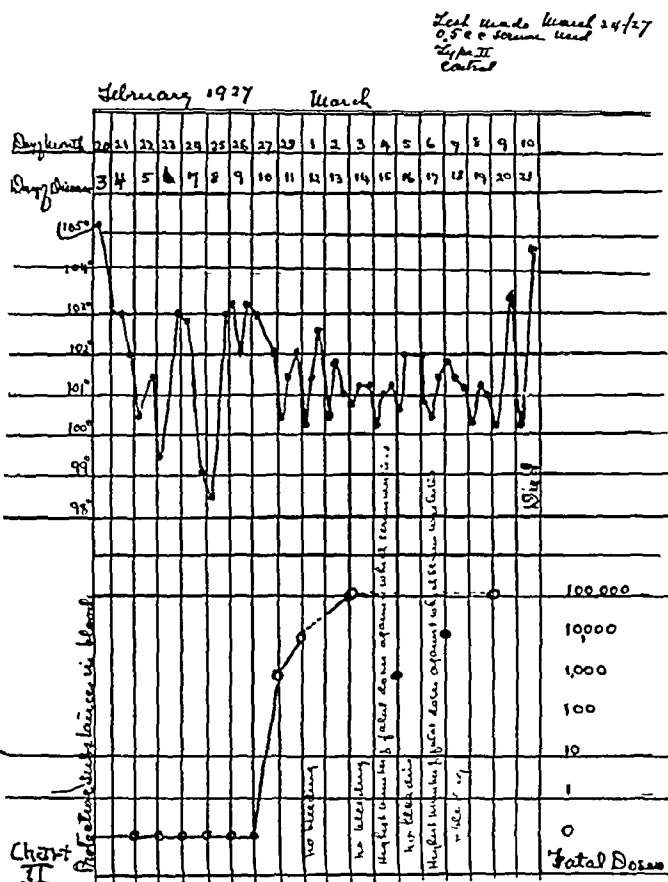
Man is much less sensitive to the pneumococcus than the rabbit, and in this fact lies the greater chance of recovery



Vaccinated Case: Showing Recovery With Unusual Production of Antibodies.

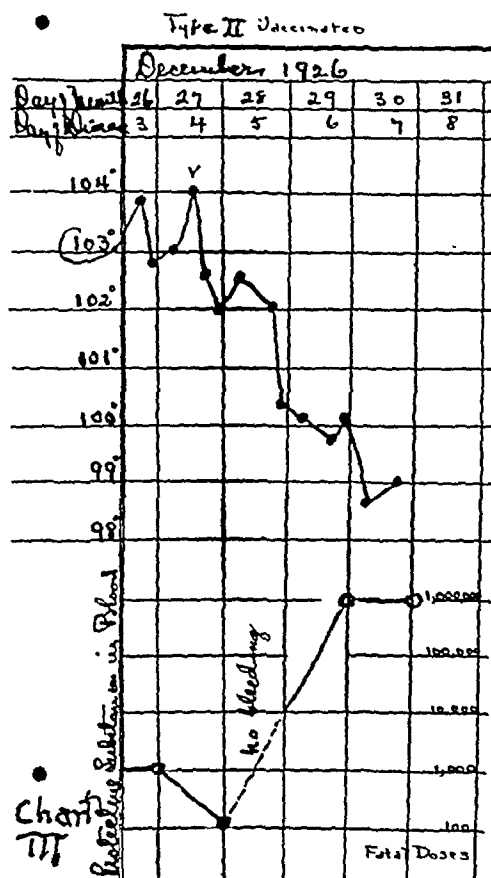
when once infected with pneumonia. In man there is also in the lung a continuous autolysation of the pneumococci, which stimulates the cellular defense of the reticulo-endothelial cells to produce the antibodies which appear in the blood at the usual time the infection is overcome.

To test the difference in the time of the appearance of the antibodies and their amount in the blood in vaccinated cases and in the controls, the blood of the patients was drawn as nearly daily as could be done, and the antibodies measured. As others had found these appeared usually



Control Case: Showing Death Although Abundant
Antibodies were Present in Blood.

on the 5th or 6th day, not often on the 4th or even 3rd day of the disease, or else did not appear until the crisis on the 7th or 9th day, or even later in convalescence on the 10th or 15th day. The vaccines did not seem to stimulate an earlier appearance of the protective bodies in the blood. But after these bodies had appeared, they were noticeably more abundant in the blood of the vaccinated than in the blood of the controls. The average being 3.9 times greater in the 32 vaccinated patients than in the 29 controls.



Vaccinated Case: Recovery With Vigorous Production of Antibodies

In one patient with Type 1 pneumonia and in two patients with Type 2 pneumonia, the specific antibodies were present in the blood of the patient on the third day, and in one patient with Type 7 the specific antibody was abundantly present on the second day of the disease before vaccines had been given.

In the early series of 38 patients we were confined to the Types 1, 2 and 3 of the pneumococcus in our study of the presence of antibodies. It was evident that in some of these patients of all three types no antibodies were developed in their blood, and these patients both vaccinated and controls recovered or died. Other patients died, and

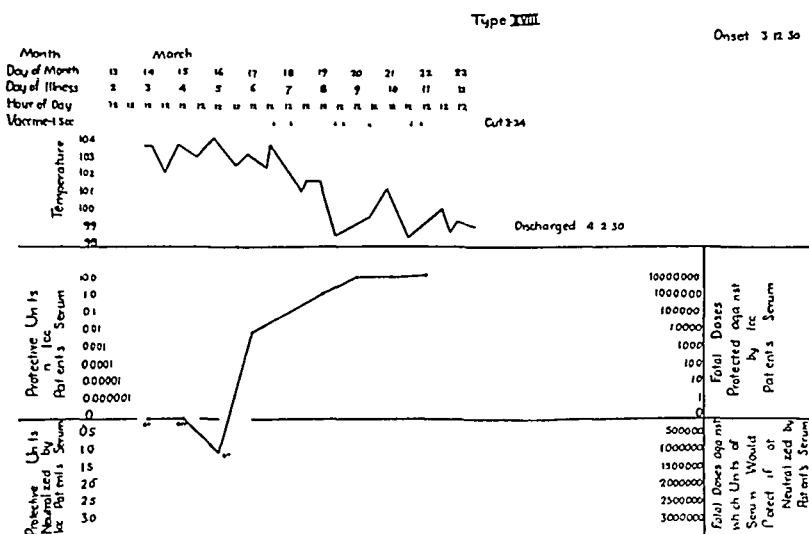


Chart XII: Vaccinated Case Curve of Presence of Antibodies in a Type XVIII Pneumococcus Pneumonia

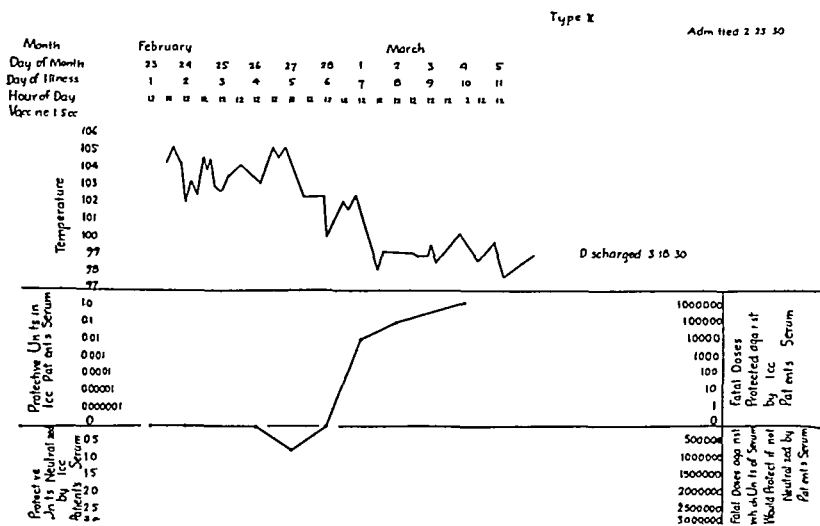
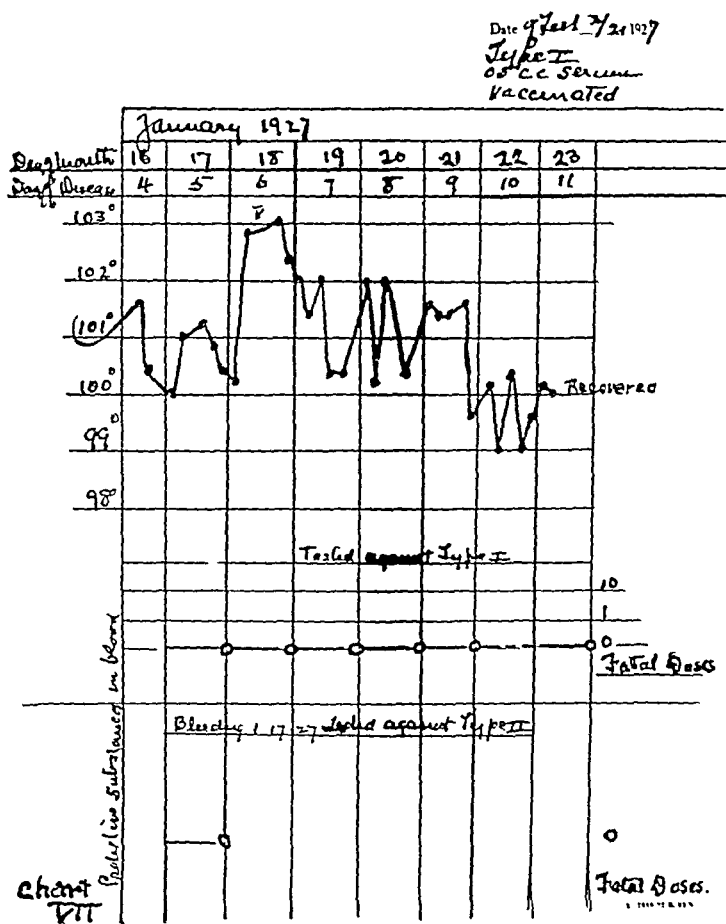


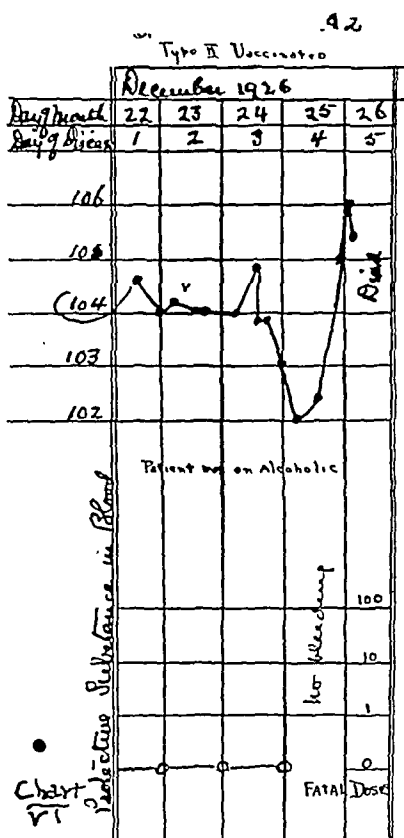
Chart XVI: Vaccinated Case Neutral Evidence of Antibodies, then Precritical Fall Followed by an Abundant Output of Antibodies at Crisis



Vaccinated Case: Recovery Without the Appearance of Antibodies in Blood.

yet showed as high a reaction to the antibodies as many who recovered, and other patients who recovered showed a smaller amount of antibodies than some of those who died. This also occurred in both vaccinated and controls.

By 1930, 15 new members of the original group IV of pneumococci could be differentiated and tested for antibodies by specific sera. It therefore seemed desirable to test below the zero line of positive presence of antibodies in the blood to ascertain the variations in the intensity of the absence of protective substances below this zero line or the presence of some toxic substance. The charts VIII to XVIII demonstrate some of the curves thus found.



Vaccinated Case: Death with no Antibodies in Blood.

These charts show as we have said that in the use of these vaccines in pneumonia the protective bodies do not appear earlier in the vaccinated than in the controls, but when once they have appeared, they have been shown to be present in the blood in amounts 3.9 times greater in the vaccinated than in the controls. The presence or absence of antibody in the blood is not the complete answer to the cause of death, nor of recovery in any given case of pneumonia. Although in general the greater the power of the body to form the protective substances, the better the prognosis. Of course the fatal issue comes most frequently when the antibodies are lacking in the blood, but this shows the inability of the response of the protecting mechanism of the body to take place.

Type II

Onset 2-12-30

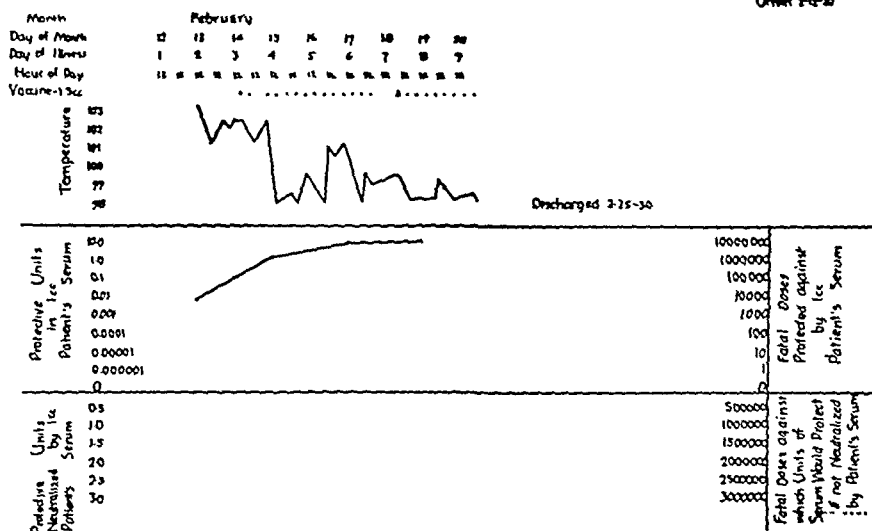


Chart XI: Shows Presence of Specific Antibodies in Blood Before Administration of Vaccines.

Type I

Onset 3-5-30

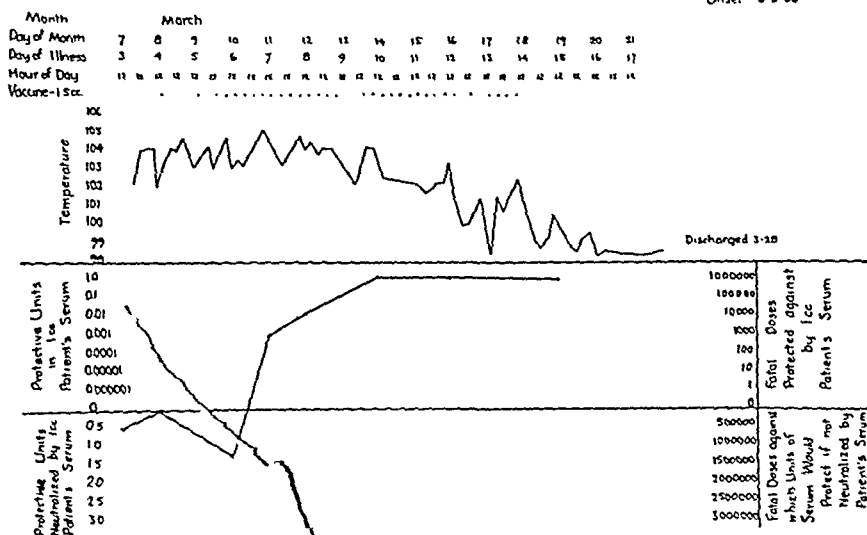


Chart X: Vaccinated Case Shows the Curve of the Absence and Presence of the Protective Bodies in the Blood.

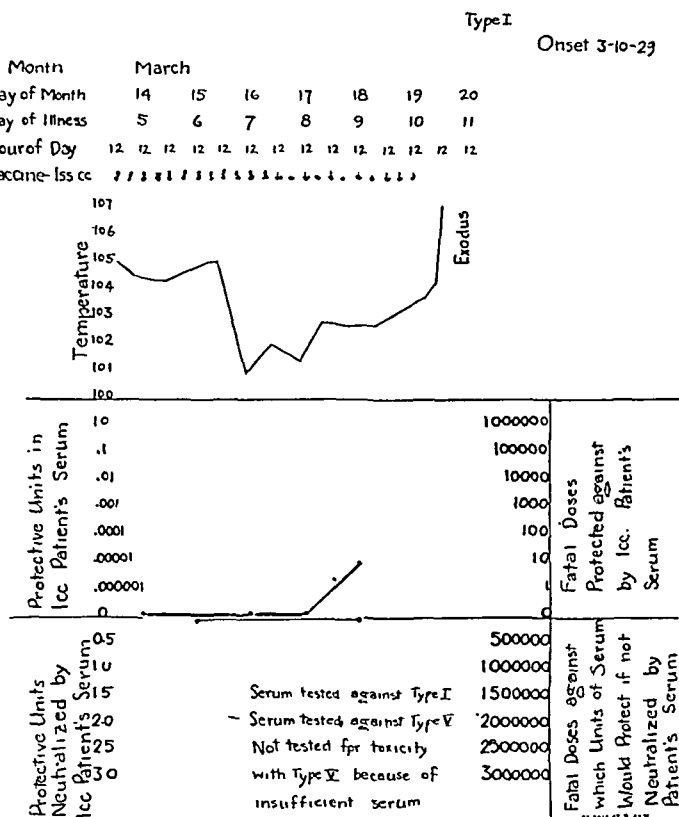


Chart. VIII Patient Had Reacted in Sputum Only Against Type I Pneumococcus. Only Type V Was Found in Heart Blood of Patient After Death. There Had Been a Double Infection, the Patient Dying from Type V.

The slides here shown you are from experiments made for me through the kindness of Dr. W. H. Park in the Health Department. The blood tested was from patients on the 4th Division at Bellevue Hospital. In the work for the positive finding of the antibodies, I wish to thank Miss Wilcox. For the work done for the finding of the negative side showing the amount lacking of protective bodies, I have to thank Miss Cooper, which appreciation I wish here to express.

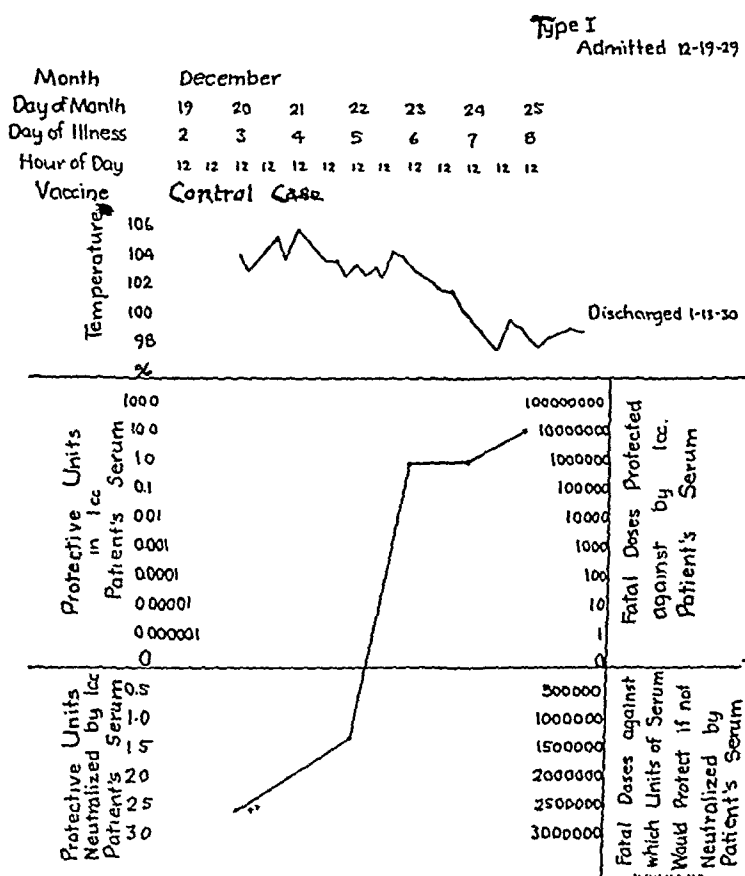


Chart IX Control Case: Shows Absence of Antibodies in Early Days of the Pneumonia, their Positive Appearance in Blood on Sixth Day and Unusual Amount by Eighth Day.

Looking at the results of the cases of the epidemic in 1918, in which the patient could receive early and active treatment of the vaccine, and especially in young people, the figures of Dr. Wynne and Dr. Dare show particularly valuable results, and in the 1,092 patients, there was a death rate of but 7.2 per cent; these figures are from patients treated with the vaccine in the earliest days of the disease, and of special young, vigorous persons.

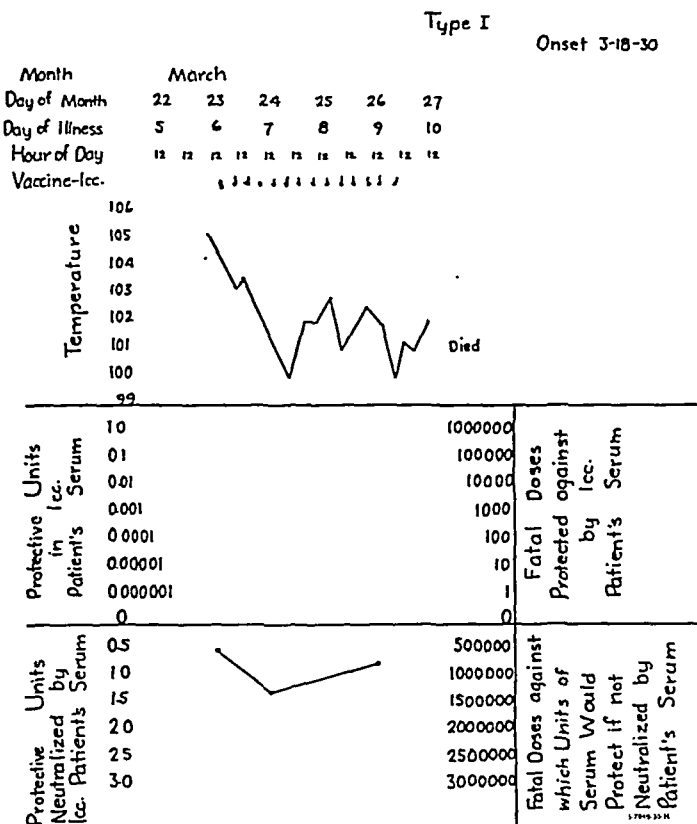


Chart XIII: Vaccinated Case Failure to Develop any Antibodies.

In the other figures here recorded the figures of Dr. Sutton are from the use of vaccines in the Cook County Hospital in Chicago, and are more like the average occurrence in pneumonia in any big city, in which the majority of patients come in on the 4th or 5th day, but even then, there is still time to improve the mortality if the vaccines are used in a large number of cases. If vaccines are used in a small number of cases the effect is not sufficiently dramatic to give the impression that any possible improvement of the mortality between the vaccinated and the controls is due to anything but chance.

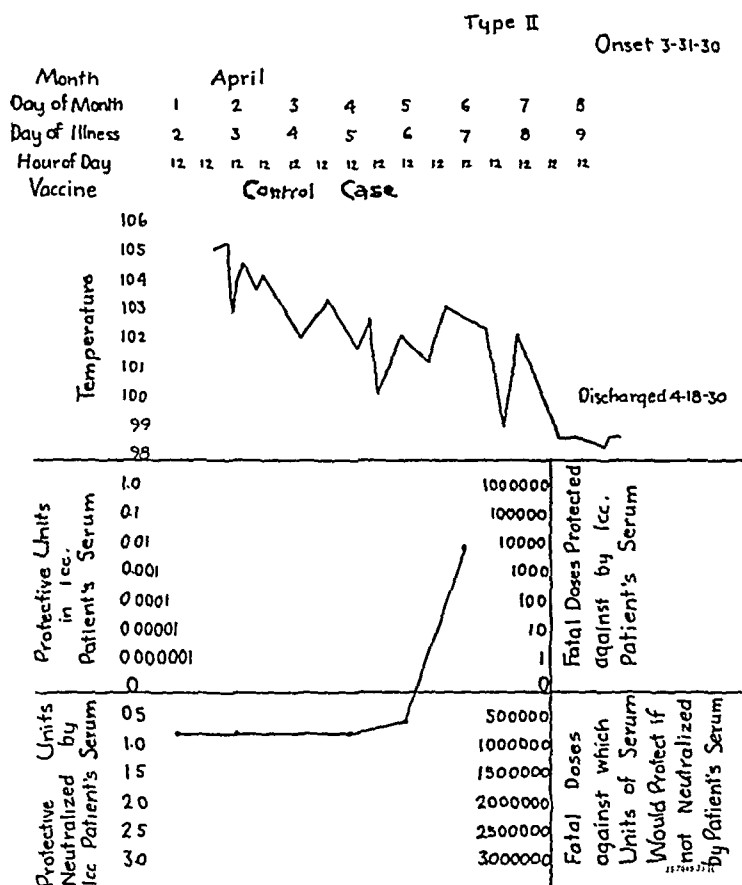


Chart XVII Control Case: No Antibodies for First Six Days of Disease, then Sudden Precritical Rise of Antibodies.

The actual number may be small indeed, but when the figures taken as in my own wards where for 8 years the vaccines were used on the Fourth Division in Bellevue Hospital more or less continuously, and where you can see there were 474 vaccinated cases as against 482 controls treated simultaneously, taken as a mass there are actually 100 deaths more in the controls than in those vaccinated, the percentage mortality of all cases being 24 for the vaccinated, and 44 for the controls. Of course, as you know, this implies the old and the young, the non-alcoholic, and the alcoholic, the starved, and the well fed, and the vigorous and the weak. It is the severest test that can be put to any treatment, taking alternate patients

VACCINES IN PNEUMONIA

*Vaccine**Controls*

	Cases	Deaths	Per cent	Cases	Deaths	Per cent
Wynne 1919	669	51	7.7			
Fort Oglethorpe						
Lt. Col. Dare	423	29	6.8			
Total	1092	80	7.2			
Warren	23	4	17.3	24	7	29.1
Sutton	160	45	28.1	173	73	42.2
Lambert	474	115	24.	482	215	44.
Total	1749	258	14.	679	295	43.

Vaccine cases

Controls

Lambert	474	115	24.	482	215	44.
48 hours	97	9	9.3	97	39	41.2
72 hours	107	17	15.8	115	45	39.1
After 72 hours	270	89	32.9	270	131	48.5

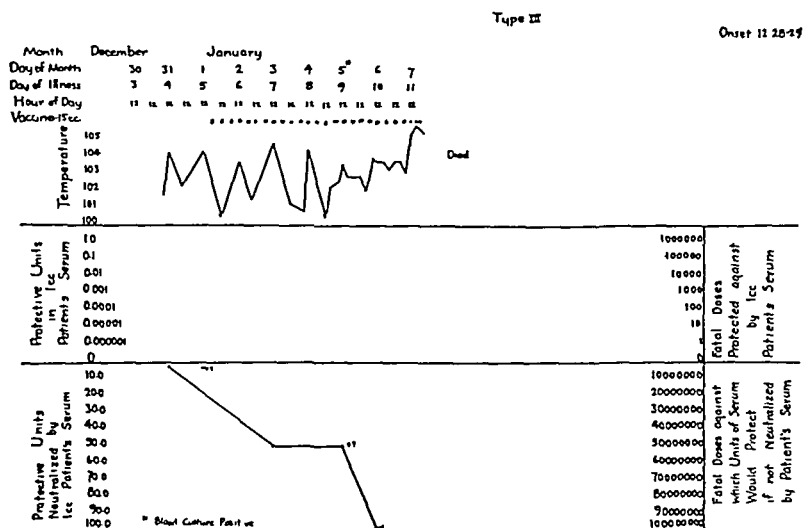


Chart XV: Vaccinated Case Shows intense lack of Protective Bodies in Blood.

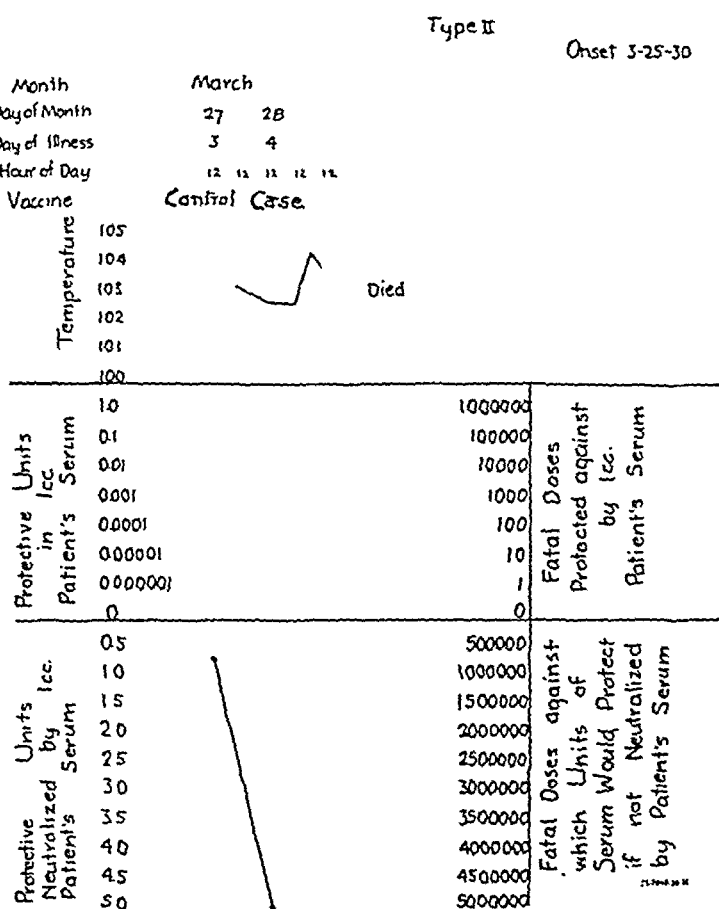


Chart XIV Control Case: Striking Fall of Protective Units in Blood

without any comment or choice, as they came into the wards suffering from pneumonia. To give any fair test of them it must be taken just as they occur. Separating those treated in the first 48 hours from those treated later there is a marked difference in results. In the 97 who had received the vaccines in the first 48 hours, there was a mortality of 9, i.e. 9.3 per cent; there were 107 patients receiving the vaccines in the first 49 to 72 hours of the disease with 17 deaths, a mortality of 15.8 per cent; in those who received the vaccines after 72 hours there were 270 patients with 89 deaths, 32.9 per cent. In 482 controls for those receiving the vaccines in the first 48 hours the mortality

was 41 per cent; for those receiving the vaccines in from 49 to 72 hours it was 39 per cent; and after 72 hours it was 48 per cent. Comparing the mortality of all the cases, 474 vaccinated against 482 controls, it is 24 per cent death rate in the vaccinated against 44 per cent in the controls.

This certainly is a sufficiently noticeable difference, and one that cannot all be due to chance, when we consider that the observations have been extended over 8 years from the years 1923 to 1931, and these have been years in which pneumonia has been abundant in New York, but in which the types and peculiarities of pneumonia have varied considerably; the total number of cases treated through this period of time, justifies the belief that chance has not entered largely into the results, that it indicates a definite value of the use of vaccines in pneumonia.

In the early cases this is particularly striking, and the vaccines give results as good as has been achieved with the monovalent serums. In the big cities where everything can be arranged for the immediate typing of the patient, as he is brought into the hospital, or as the disease occurs in private practice, and where the serum is immediately accessible, patients can receive their treatment with the most beneficial results, but that is only possible in the distinct minority of patients suffering from pneumonia. This strict specificity of type puts up an insurmountable barrier between those who can be treated favorably with serum, and those who can not, between Types 1 and 2 and 7 pneumonias, and all the other 30 odd types.

With the vaccines you have a preparation that is active, and which can favorably modify the mortality of the disease. They can be given here in the hospitals where everything is ready to receive the patient, and can be given immediately the diagnosis is made, long before the type of the patient is taken, and can be given out in the country where nothing is available, where it is not possible to type the pneumococcus, it is not possible to do anything except treat the patients with what one may be able to carry to him, with clinical aids and facilities lacking. They are of

as great benefit in Types 1 and 2 pneumonia as are the serums. They are of great benefit where the serums at present obtainable cannot be used.

In choosing your vaccines there is a great difference. Those to which heat has been applied, as Sutton has shown, are more or less inert, how much one specimen may be inert it is impossible to say, but heat is injurious to the activity of the vaccines.

In animal experiments using vaccines it has been found that in all probability those sterilized by formalin have been given the best substance that will leave the fullest activity in the vaccines. Tricresol used as the lethal agent for the pneumococcus is also of excellent value. There is a slight question whether or not it is as good as the formalin under all conditions. Vaccines must be kept up to high virulence by those who produce them, and the virulence of the cultures can deteriorate, and they are less active in their protecting powers when this occurs. I have no actual demonstrable proof of this beyond my clinical observation, but during my use of them I have become convinced that this is so.

The vaccines here used have been for the most part a mixture of pneumococcus 100 million to each c.c., streptococcus 100 million, influenza bacilli, micrococcus catarrhalis and staphylococcus aureus and albus each 200 million. In the pneumococcus are contained all forms of pneumococci. Personally in treating these pneumonia cases from 1 c.c. to $1\frac{1}{2}$ or 2 c.c. of these vaccines have been given every 6 hours while the fever lasted, and when the temperature reached 99° F they have been changed to every 12 hours for 1 or 2 doses, and then stopped.

Other vaccines are on the market containing a higher amount of pneumococci, which may be of advantage.

There is a distinct advantage in having the mixture of the other germs, in that there is no question that the secondary infections of bronchitis and empyema can occur and the vaccination against these may also be obtained at the same time as against the pneumococcus.

The best place to give these hypodermic injections is in the gluteus medius, not in the coarse fibers of the gluteus maximus, which is very apt to be the place chosen, nor should the side of the thigh be used where the fascia lata is so thick, also an intramuscular injection is to be preferred to a subcutaneous. Another excellent place is back of the deltoid on the shoulder, or into the deltoid. Care should be taken not to push these vaccinations into the triceps muscle, which is so frequently done, because of the many fibrous bands running through the origins of that muscle.

There is no rise of temperature after these vaccinations, and in the majority of instances they do not leave any inflamed or tender spots. This may occur, however, and a wet dressing of Dobell's solution will soon stop the pain and any disagreeable itching resulting therefrom. In a few instances there has occurred a slight chilly feeling after these vaccines, and in that instance it is wise to reduce the dosage for that patient, but this has occurred in only 2 or 3 instances in many thousands of injections.

So much for the specific treatment of pneumonia.

There is no question that the use of oxygen in pneumonia has been of enormous benefit both to the comfort of the patient and improving his chance of recovery. If the modern oxygen tent, or the modern oxygen chamber cannot be obtained, one must struggle on with the tubes placed in the nostrils of the patients, and kept there by surgical plaster. This will improve the situation over no oxygen at all, and very materially improve it, but the tent in which the patient can lie and rest and be cared for, which is familiar to you all, is of the greatest benefit, but there is no question that in selecting it, one must obtain one that is large enough to keep it from becoming overheated by the feverish patient and have it large enough to seem to him that he is not shut in, and suffering from a closed and stuffy incarceration. In the ordinary tent first used, it was very noticeable in the hospital, that in many patients the sense of claustrophobia is strong, and it is

noticeable in the hospital that the average tent cannot be used in more than one third of the patients who need it the most. A half delirious, or fully delirious patient cannot be reasoned with; if he is alcoholic, he is less prone to the reception of new ideas than otherwise, and there is with these patients particularly, a large amount of fear connected with their suffering.

The tent with the metal sides jutting out like an old fashioned lean-to on the upper part of the bed, with the roomy space, is by all odds the most comfortable and practical.

Of course, if it is possible, an oxygen chamber is the most perfect thing for the proper oxygenation, in which the patient has no sense of fear, and it is large enough to give him no sense of suffocating or of being overheated, and his nursing goes on uninterruptedly.

In treating the pneumonia patient the great question of cardiac stimulation comes up.

Stone drew attention to the condition of the heart muscle after death; in statistics from some 2,000 autopsies, his figures make it evident that the heart muscle is found normal in about 1/4 of the cases. The parenchymatous degeneration may be present in as high as half the cases, and fatty degenerations and other forms may occur in 1/8th or less. Of course these figures vary with each observer, and the conditions vary as to whether the patient has died from acute disease, or whether there have been the septic complications of empyema, or lung abscess, etc. These figures probably mean that the heart may cease from functional breakdown of the circulation, and the equilibrium of the circulation be so disturbed, that the heart cannot go on. It may mean however, that in a diseased muscle with acute degeneration, one should be careful not to push cardiac remedies so that they themselves will act to disadvantage by direct poisoning, which the remedies may cause. This refers particularly to the use of digitalis; it has been very definitely proven by Niles, Wyckoff and

Forrie and others, that the full modern digitalization of patients in pneumonia is a dangerous thing to do, it jeopardizes the life of the patient in a distinct proportion of pneumonia patients. Small doses of the tincture of digitalis, so called tonic doses, in many instances seem to help the patient, and help the circulation, that is, doses of 10 to 20 drops, 3 times a day, or 4 times a day. If a sudden fibrillation of the heart occurs 1 or 2 c.c. of digifoline given intramuscularly, or intravenously, and repeated, if necessary some hours later, may be of very great benefit, but it can not be kept up as routine procedure.

McKenzie drew attention years ago to the fact that sudden appearance of extrasystoles in the cardiac rhythm in pneumonias, when the temperature was above 103, in a patient whose pulse beat had been previously regular, was of very serious prognostic import, and stated that he had never seen a patient recover in which this had occurred. This observation is unquestionably of value, as experience teaches, and the extrasystoles from too much digitalis, if his drug is being pushed, may occur, or it may be the beginning breakdown of the heart. That it is universally so, and always means a fatal termination to the patient is not true, for in a few instances I have seen it occur, and yet the patient recovered.

Many patients can go through their pneumonia without the necessity of cardiac stimulation. In some patients, as they begin their pneumonia, or as they arrive at the third or fourth day, the small doses of digitalis seem of real benefit to them, and it is better to have the tonic doses of digitalis already acting as the time of crisis approaches, than it is to wait, and suddenly have to give vigorous stimulation, if there is a tendency towards collapse.

Caffein as a cardiac stimulant is an excellent one. It has the disadvantage however, that although it stimulates the systolic contraction of the heart, it also stimulates the brain to wakefulness, and adds to the general discomfort of the patient, and its advantages and disadvantages must be weighed. Overstimulation of the hearts of the older

patients by caffein may itself produce extrasystoles and even fibrillation, and this must not be forgotten.

Sometimes when the heart is struggling to keep up the circulation, and is struggling with an evidence of lowered blood pressure, which comes both from the dilatation of the body capillaries and a lack of cardiac power, adrenalin is an excellent drug, and is best administered in what is termed a series; that is 5, 7 or 10 minims, or even 15 minims in severe cases should be given every hour for 6 or 8 doses; in that way often the heart will pick up its energy, and the equilibrium of the circulation becomes improved, and the patients receive it with marked benefit.

In sudden cardiac collapse adrenalin in single or repeated doses, even 10 to 15 minims every 15 minutes for 3 or 4 doses, is a remedy that is always wise to have on hand, and ready for use. These series of adrenalin can be given, and then stopped, and then taken up again a few hours later, if it seems that the necessity for them arises.

There is one drug over which there is still a great controversy as to the advisability of giving it in pneumonia. There is still a belief that it is a cardiac stimulant, although pharmacological experimentation definitely shows that it is not. I am speaking of alcohol, and naturally enter into a controversial subject at this point.

There is no question that previous to having pneumonia, excessive taking of alcohol increases the chances of the occurrence of pneumonia in the human body, and if alcohol has been taken in excessive doses, previous to the pneumonia, there is no question that the prognosis in pneumonia is made much worse. In 1,000 cases at Bellevue the death rate in alcoholic pneumonia was 66 per cent, in the non-alcoholic it was 29 per cent. This includes the young, and the middle aged and the elderly all together, so that it could be taken as a fair judgment.

There is no question but that alcohol dilates the capillaries of the skin as one of its early actions, and if the circulation is already suffering from excessive capillary

dilatation, and a weakened heart is struggling against this unusual distribution of blood, to add to it is certainly harmful. At first the feeling of the pulse after alcohol, is fuller, and the output of the heart seems to be increased, which may be distinctly advantageous, but it soon begins to paralyze the myocardium and diminish the output of the heart, which is a distinct disadvantage. In general the profession is using alcohol in pneumonia less and less, and its action has become recognized more and more as a detriment, rather than an advantage. If one is dealing with an elderly alcoholic, who is nervous from his previous excesses, it is wise to taper off his alcohol rather than cut him off quickly, but in young people in my opinion, it is wise to cut it off as quickly as possible, and to leave it out during the acute stages of the pneumonia. In elderly people it is true that those who are arteriosclerotic will improve under a ration of alcohol with their meals, but that is for a condition in relative health, and one in which we are dealing with arteriosclerosis, and not dealing with an acute infectious disease.

Alcohol as a stimulant to digestion, if given so that the amount of alcohol in the stomach does not exceed 5 per cent of the gastric content, will increase the digestion, and does improve the patient's nutrition, and is a valuable addition to his diet, whether he be young or old, if in convalescence he needs this drug.

It is claimed that alcohol is a food, and acts as a food, although it cannot be stored up, and will act as a sugar when given.

Very well then, wait until it is a question of feeding your patient in recovery, and don't poison your patient during the early stages of his acute disease. All this I know will be denied by many of my confreres, I notice however, that increasing numbers acquiesce.

This belief has grown upon me as my experience with pneumonia has increased. I was taught in my youth to give alcohol by all means, and to push it, and at that time

it was considered nearly criminal to omit alcohol in pneumonia. After many years of doing this, I could not see its benefit, and after trial of giving, and not giving, the beliefs that I have expressed have gradually developed.

An interesting experiment was made soon after I turned from the War in my wards at Bellevue, during the time there were many influenzal pneumonias. In one ward with Dr. Nammack, alcohol was used freely, in my ward it was not used at all. The treatment otherwise, and the procedures in the care of the patients were exactly the same under the same intern staff, there was no difference in the drugs used, or in the other procedures. There were 200 cases brought into each ward; the death rate in those treated with alcohol was 44 per cent; the death rate in the non-alcohol group was 16 per cent.

Often in the early stages of pneumonia cough is a very troublesome symptom; the characteristic pneumonic sputum is tenacious and thick and hard to bring up, and if there be any pleurisy added to this, each cough may bring an agony of pain. Frequently I find that codein is given to stop the cough, and to stop the pain at the same time but the thickened sputum remains in the lungs. In the early stages of the bronchitis, or in patients in whom bronchitis is a marked symptom, or in whom bronchitis has developed first and pneumonia has developed subsequently, it is more beneficial to the patient to obtain a discharge from the bronchi, and increase the room for the admission of oxygen for the heart, than it is to leave the sputum tenacious and thick. The most successful drug that I have found for that, is small doses of antimony given in Brown's mixture, or in the wine of antimony. Frequently I have found that about 3-5 minims of the wine of antimony, and 3-5 minims of wine of ipecac, and a grain of ammonium chloride, and a grain of potassium iodide, given in each teaspoonful and given every 2 hours will loosen up the sputum, will not bring on nausea and will act with the greatest benefit to the patient. In many of the cyanotic influenzal patients this mixture will

diminish the amount of sputum in the bronchi and clear the lungs, and loosen up the sputum, and if the patient can have a loose cough, when the sputum is easily raised he coughs less, he has less pain, he obtains more oxygen.

Now as to pain and the use of opium in pneumonia; when one meets a complaint of pleurisy, it is well to remember that pleurisy is not always in the area where the pain occurs. Remember the anatomy taught to you in your youth, remember that diaphragmatic pleurisy may affect the central portion of the diaphragm, and the pain will be in the top of the shoulder in the radiation of the phrenic nerve going out from the 2nd, 3rd or 4th cervical. The outer third of the diaphragm is supplied by the lower six intercostal nerves. Pleurisy close to the vertebral column which causes a pressure on the nerve in the short length of about 1 inch in which the nerve is unprotected by the groove of the rib as it comes from the vertebral foramen, and pressure on the nerve at this point will cause pain in its lateral branch in mid axilla, or cause pain in its anterior branch on the chest or abdominal wall. This is very frequently seen in children, and not uncommon in adults. One frequently finds poultices put on the abdomen to stop the pain that is occurring from the pleurisy in the back. The best thing to stop pain is a good thick flaxseed poultice, the first to contain mustard of about $1/8$ th of the poultice; this poultice to be kept on for 2 hours, and then followed by another flaxseed poultice without mustard, and that kept on for 2 hours, and then removed, and then cease all poulticing, and it is not to be repeated for 8 or 10 hours. In this way there is little disturbance of the patient, and frequently it entirely clears up the pain.

Of the opium preparations to stop pain codein mixture with some analgesic will frequently do it, and do it better than morphine, and remember in giving codein, that 1 grain is equal to $1/8$ th of a grain of morphine in its effects, and will stop pain equally well with some analgesic as a few grains of sodium salicylate and aspirin, or given alone without these.

Morphine for pain, in pneumonia in my experience is not a safe drug, and it has puzzled me for many years as to the probable reason for it.

I have seen patients suffering pain, given an injection of $1/4$ of a grain of morphine, and in spite of their breathing comfortably at 24 or 25 a minute, and the pain relieved, they died suddenly like a snuffed out light. I was greatly impressed with this as an intern, and when I had my own responsibility to go on, I have ceased giving it.

Recently it appears that morphine paralyzes the action of the sympathetic adrenal system, and interferes with the production of the sugar from the liver when the call of the adrenal makes this demand in the struggle for existence.

I have wondered if in interrupting or injuring this system we do not break a very delicate balance when most needed for protection of the body. I offer this guess as a possible explanation, as I know of no other, but frankly I have a fear of morphine in pneumonia. Codein does not act that way, codein does not paralyze the respiratory center, it diminishes the action and acts more quickly on the coughing center than morphine does. For these reasons, it is better to use it in pneumonia, than to use morphine. Codein given in $1/12$ th to $1/10$ th grain doses and frequently repeating, *i.e.*, every 10 to 15 minutes for several doses, will control cough much better than if given in $1/4$ or $1/2$ grain doses.

With restlessness and sleeplessness we come to a real problem; there are many hypnotics on the market which ordinarily can be used; the old fashioned trional, if given in a little warm milk in 5 or 10 grain doses, with a grain of codein is an excellent hypnotic, if there is pleuritic pain. Many of the barbituric acid preparations are used, and in ordinary people who are not alcoholic, they are of benefit, and if they do happen to pervert the personality, and make the patient unreasonable, they can easily be stopped; but in dealing with the alcoholic, if you push your barbituric

acid drugs, and all alcoholics need huge amounts of hypnotics to affect them, you are sure to make them more and more resistant and resentful, and increase the restlessness, and make the patient more and more of an unmanageable problem. It is often difficult to know what to give them. Paraldehyde given in a little orange juice to kill the rankness of its taste, may be very efficacious, 2 drams, and repeat in 1 or 2 hours if necessary: it does no harm to the pneumonia patient, and may be of great benefit. I have seen paraldehyde injected intravenously in 30 to 60 minim doses, sometimes with benefit to the patient. I have seen as much as 4 or 5 drams given intravenously, and have no effect whatever on the patient.

There are a few patients you must remember that paraldehyde excites; in such cases it increases delirium, and does not act as a hypnotic, and this action is not rare. At times some of the barbituric acids intravenously have been used; in most of these, as sodium amytal, the line between safety and danger is so narrow that it is not safe to use them.

The most satisfactory remedy seems to be the old fashioned chloral and bromide, used as a mixture, in which there are 15 grains of chloral and 30 grains of sodium bromide used at a dose, to which you must add some capicum and ginger to be sure that absorption of the medicine takes place after it is in the stomach, for often an alcoholic gastritis inhibits absorption.

When this is given, you can give by mouth or by hypodermic one or two grains of codein with each dose of the above B and C mixture. This can be given and repeated in an hour if necessary, and if persisted in you can quiet the vast majority of your alcoholic patients so that they are manageable and quiet, and sleep comfortably.

With codein, of course you will obtain constipation, and the pneumonia patient must be watched to see that either with an enema or through colonic irrigation, the bowels are moved daily. Often it is wise to add some mild cathartic to help bring this about. The old fashioned idea of

always beginning a case of pneumonia with a thorough calomel purge is not so generally accepted as formerly, but it is wise in the early stages of pneumonia to see that the bowels are properly moved each day.

In feeding the pneumonia patient, fruit juices are most grateful to the patient, and supply him with abundant sugar, and abundant vitamins. By fruit juices I mean orange juice, grape fruit juice, or grape juice, and to any one of these, if pleasant to the patient, lemon juice can be added. The amount of these to be taken need not be limited, and very frequently they add to their benefits that of cathartic action. A plain milk diet is apt to leave a large residue in the bowel, and is apt to add to the abdominal distension. Of course a mixed soft diet, toast and bread and butter, and milk and meat broths and eggs are all of benefit.

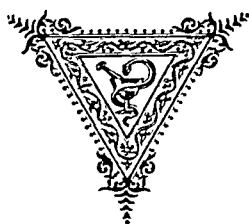
Pneumonia patients should be given abundance of fluid to keep their kidneys acting, and also to supply the fluids necessary for the excessive sweating with which they are apt to be annoyed.

As far as the temperature of pneumonia patients is concerned, they do not need a reduction of their temperatures, except as it causes discomfort if it rises too high, that is above 105. By too high, I mean too high for their comfort, I do not see that the height of the temperature necessarily does any harm to the patient. The oxidation products and the break down in the equilibrium of heat lost and heat production, does not seem to occur in pneumonia to such an extent that it brings on unconsciousness. That from our experience in sun stroke does not seem to occur until temperatures reach the height of about 108 or 109, these heights I have never yet seen in pneumonia.

If the patient is uncomfortable alcohol baths may help him, but that the height of the fever is something necessarily to be reduced, and is a danger per se, I do not think is accepted today. As your patient convalesces do not let him get out of bed until about a week after his tempera-

ture falls to normal, and if his lung does not resolve quickly, be careful how you push him in his convalescence. In youthful and vigorous patients there are cases in which a prolonged unresolved lung may be best cleared up by out of door existence, and moderation in exercise, but it is well to let the patient rest in bed until the pneumonic exudate is resolved. Often some form of creosote in delayed resolution as guaiacol or other preparation of creosote will frequently help the dissolution of these exudates.

There are many small things to be done, and many things to be given to the pneumonic patient that come under the head of good nursing, and I think this good nursing looms large in the good care of the pneumonic patient, and I think good nursing not only improves the comfort of the patient, but improves the prognosis of his recovery.



THE HEALTH AND WELFARE RESOURCES OF THE CITY FOR THE PHYSICIANS

MR. WILLIAM HOESON

Executive Director, Welfare Council of New York City

Abstract of an Address before the Academy of Medicine, March 2, 1933

The City of New York and the nation as a whole are engaged in a gigantic effort to provide millions of people with food, shelter, and clothing and at the same time to maintain at least a decent minimum of health care, which includes the treatment of sickness and disease and the prevention of illness and physical breakdown. Relief and welfare are now more than ever intimately bound up with the health of the nation. Unless the necessities of life can be assured to those who are out of employment and without resources, it inevitably follows that exposure, malnutrition, and lack of medical attention will undermine the strength of our people and disease will spread rapidly. We have been told that for the population as a whole there has never been so little illness and death as at the present time but it must be remembered in connection with this statement that the rates of sickness and mortality represent an average for the population as a whole. Perhaps the majority of our people are still able to take care of themselves and to purchase health care, but a large and rapidly increasing proportion are unable to do this and the rate of sickness and death among the unemployed is a matter of growing national concern. It must be remembered, moreover, that the results of inadequate food, delayed medical attention, worry, and malnutrition may not be reflected immediately in the accounting for sickness and death, but these factors will play an important part in undermining the health of our people as time goes on. That is why constant vigilance in health work now is the price of future safety.

The objectives of public and private medical and health work are two-fold. First, to treat and cure a disease, and second, to prevent disease so far as possible and promote

healthful living through education and the control of environmental factors. In 1929 the Welfare Council of New York City published the results of a study of health work under the title "A Health Inventory of New York City". This Inventory undertook to classify and describe the various public and private health services which are provided in this community, emphasizing particularly those services which aim to prevent disease. In the opening chapter of that Report it is pointed out that more than 125,000 persons are sick in bed every day of the year and at least twice that number in addition are incapacitated although not actually ill. At the time of this Report about 70,000 persons in the city died each year, many of them from sickness that might have been prevented or postponed; 7,000 of this total number were babies. It was further estimated that the annual loss in wages due to absence from work caused by illness was at least \$75,000,000, and that there was a still larger loss due to diminished productivity and loss of future earnings through chronic illness and premature death from preventable causes. It was further estimated that the total amount of money spent by the citizens of New York for the care of disease was in the neighborhood of \$150,000,000 a year. For the treatment of disease primarily we had 11,000 physicians, 12,000 nurses, 6,000 dentists, and more than 200 hospitals and clinics operated both by the city and by private or voluntary organizations.

If comparable data and estimates were available for the year 1932 there would no doubt be changes in these figures but they serve nevertheless to indicate something of the extent of illness and death, its cost, and the general character of the service provided. For the treatment of disease we rely upon the physician, the nurse, the hospital, and the clinic. A considerable part of this service is paid for by the recipient in the normal relation between doctor and patient, or between hospital and patient. On the other hand, a very substantial part of the cost of the treatment of disease is borne by the public and private hospitals, clinics, and visiting nursing services, not to mention the

unremunerated services of the physician. It is imperative that funds continue to be provided through public taxation and through private philanthropy for the maintenance of the organized services which treat and cure disease since the present situation threatens both to restrict hospital, medical, and nursing care and to reduce its efficiency.

The same situation obtains with regard to the public and private services which have been established to prevent disease and to promote good health. In 1929 there were 300 agencies of which the largest was the Health Department furnishing these organized preventive health services in the city. Apart from the preventive health work which the physician renders in connection with his private practice, there are four ways in which the prevention of disease is undertaken. First, there are the clinics which means a doctor working under organized auspices and serving those who come for treatment and advice. Second, there is the home visiting by the public health nurse and the social worker who bring personal attention, advice, and education to the family in the home. Thirdly, there is health education in the form of literature, private conferences, radio broadcasts, posters in street cars, lectures, and information provided through the newspapers. The fourth type of health prevention is through institutions such as hospitals, convalescent homes, and health demonstrations. These varied types of preventive work serve the child from infancy and through the primary school years and the key note is to keep the well child well by discovering as early as possible any physical conditions which, if promptly remedied, will avoid serious illness or defect. The importance of maternity hygiene is stressed through clinics, visiting nurse services, and other organizations which provide pre-natal and post-natal care for mothers. Major emphasis has been laid upon the control of tuberculosis through a variety of clinics, institutions, and other services. The control of venereal disease, of heart disease, and of cancer all occupy the attention of public and private organizations directly concerned with these problems. Here again the need of both public and private support to maintain these preventive health

services is pressing and the failure to secure the necessary support will ultimately be reflected by an increase in sickness and death.

In suggesting ways and means by which the physicians and the public generally may utilize the relief and health resources of the community in behalf of those who are in need, it would obviously be impossible to list and classify all of the organizations and institutions which engage in relief and health work. However, it is possible to make some concrete suggestions as to the major sources of help and assistance. First let me deal with the subject of material relief. Under the provisions of the State Emergency Relief Law, known as the Wicks Law, the city of New York has set up a Home Relief Bureau under the Department of Public Welfare which has branch offices and application centers in different parts of the city. Relief is given to individuals and to families who have been residents of the State of New York for two years and who are without resources sufficient to maintain themselves. This relief is given not in cash but in kind. In other words the Home Relief Bureau issues food tickets which entitle the holder to secure a balanced ration of food at regular intervals from the established grocery stores in his neighborhood. By far the largest item of relief given consists of food. Rents are paid on occasions and the payment is made directly by the Home Relief Bureau to the landlord. A relatively small part of the relief expenditure goes for clothing and here again the Home Relief Bureau issues an order on the merchant for the clothing which is to be provided for the family. In other words no cash passes from the Home Relief Bureau to the family. Food, clothing, shelter, and other necessities are given on orders issued to the family by the Bureau. In the month of January the Home Relief Bureau spent slightly in excess of \$2,000,000 and cared for more than 74,000 families. Now the important point to be noted in connection with city home relief is the fact that by reason of inadequate funds little or nothing could be provided for health care although it was known that thousands of families were unable to pay for

the services of a physician or to cover the costs of nursing and hospital care. The Temporary Emergency Relief Administration of the State of New York came to the rescue and through appropriations made by it assisted the Home Relief Bureau to begin an experiment in providing medical and nursing care to those families in urgent need of it. For this purpose the State Relief Administration appropriated \$75,000 in December and January and appropriations have been made for February and March to carry this work along. The plan of operation was devised by the special Committee on Medical Care of the Coordinating Committee on Unemployment of the Welfare Council which cooperated with the Home Relief Bureau, the Department of Health, and the County Medical Societies in determining upon the proper procedure. In brief, the plan of procedure divides the city roughly into zones corresponding to the police precincts and physicians who are willing to care for patients referred by the Home Relief Bureaus are paid at the rate of \$2.00 a visit for all services rendered. The nurses who are cooperating in the plan are paid at the rate of \$1.00 a visit. At the present time there are thirty physicians and 170 nurses who have rendered service under this program and more than 4,000 patients have been given medical and nursing care. Physicians who are willing to be listed as available for this service can send their names to the Secretary of the Medical Society of the County of New York indicating the times at which they are free to make visits on the call of the Home Relief Bureau. The physicians who signify their willingness to do this are listed by zones throughout the city and called in rotation. Dr. Hugh Hodge is in charge of the medical services and he has his headquarters at the Department of Health. Miss Ruth Lavin is in charge of the nursing service and she also has her office at the Department of Health. Although it should be emphasized that this project is not under the direction of the Health Department itself. It will be understood, of course, that the extent to which this medical and nursing service can be rendered is strictly limited by the appropriations which are now or may hereafter be made. There is

Service of the Welfare Council which can put you in touch with the proper agency to handle the family or individual with whom you are in contact.

The care of homeless persons and beggars on the street has presented some difficulties, particularly because by responding to an appeal for alms one is only making matters worse. There are, of course, many and varied facilities for the care of the homeless including the Municipal Lodging House, the Salvation Army, the Bowery Y. M. C. A., and many others. In order to correlate the work of these organizations to give the citizen an opportunity to help the homeless man or woman without giving alms, there has been set up a Central Registration Bureau for Men at South Ferry to which all homeless persons can be sent with the knowledge that they will be referred to the appropriate agency for care. A similar Central Registration Bureau for Women has been set up in connection with the Emergency Work and Relief Bureau at 297 Fourth Avenue.

You will probably be interested to know how duplication and overlapping is prevented among these varied relief agencies that I have named and many more which I have not named. The answer is the Social Service Exchange operated under the auspices of the Welfare Council. All the public and private agencies report to this central clearing house the individuals and families that are known to them and last year more than 600,000 clearances of this sort were made. It is thus possible for any agency to know whether a particular family is known to any other agency. By this means duplication in relief giving has been reduced to a minimum.

Now turning to the health services which are available for persons in need, may I call your attention to the 96 social service departments of public and private hospitals which are organized to serve the patients of the hospital and its clinics. As you are undoubtedly aware these social service departments provide follow-up-care both inside and outside of the patient's home interpreting the instructions of the physician, assisting in carrying out his recommen-

dations on hygiene and diet, and performing a variety of services which make it possible for the patient to carry out his treatment. Then there are the visiting nurse services of the city notably, the Henry Street Nursing Service with headquarters in Manhattan, and the Visiting Nurse Service of Brooklyn which provide pre-natal and post-natal service to mothers in their own homes and general bedside care for the sick. These nurses are doing an indispensable public service and in the doing of it are working in close cooperation with the family physician wherever there is one.

The Information Service of the Welfare Council has had numerous inquiries with regard to convalescent care. In this connection may I refer you to the Hospital Information and Service Bureau maintained by the United Hospital Fund which in addition to answering questions on hospital care provides information about convalescent homes, the vacancies which are available in the various homes, and the requirements for admission.

In the field of care for the tuberculous, the New York Tuberculosis and Health Association is a center of information concerning institutions and clinics for tuberculous patients. This service can also direct the physician to the various diagnostic clinics which have been set up for tuberculous patients who can pay a moderate fee to the physician but who are unable to afford the services of a specialist. These clinics provide expert diagnosis including X-ray. They receive patients only as they are referred by physicians and the reports are made back to the physicians themselves and not to the patients.

In connection with care for children the Children's Welfare Federation can provide information concerning child health, maternity, and nursing services and care for children while the mother is in the hospital.

The Association for the Aid of Crippled Children arranges for education, summer care, and follow-up on medical treatment for crippled children from birth to sixteen years of age. There are a variety of services provided

for the blind, the hard of hearing and the crippled and disabled. Information with regard to these services can be secured through the Information Bureau of the Welfare Council.

Nothing has been said up to this time with regard to the growing problem of mental health. It is of course impossible to determine fully the effects of the depression with its consequent unemployment upon the mental and emotional make-up of those who are without funds and in a state of agonizing uncertainty. The New York City Committee on Mental Hygiene is a valuable source of information with regard to the mental hygiene services which are available and it serves as a clearing bureau on questions concerning mental health and the organization of clinics to deal with mental and emotional problems.

All of the foregoing is but a hasty and incomplete survey of the field. Perhaps it will serve to indicate the character and extent of the varied public and private services which are available and some of the major organizations to which the physician can turn for help on behalf of his clients who are in need. In reviewing the health services of the city I have not begun to do adequate justice to the work which is being done by the Health Department of the City of New York under the direction of Commissioner Wynne. With much of that work the members of this body are thoroughly familiar and a complete exposition of the many services rendered to the city by this Department would require an evening by itself. Suffice it to say that this city is more than fortunate in having a man of Dr. Wynne's qualifications at the head of the official health services of the community.

FELLOWS DESIGNATED AS SPECIALISTS

The following named Fellows of the Academy have been accepted by the Committee on Fellowship for designation as specialist in their various fields and have been approved as such by the Council.

Dermatology and Syphilology

FREDERIC H. DILLINGHAM	OSCAR L. LEVIN	CHARLES M. WILLIAMS
JOSEPH J. ELLER	EDWARD R. MALONEY	FRED WISE
HOWARD FOX	MAX SCHEER	

Medicine

ANTHONY BASSLER	WILLIAM GOLDRING	JOSEPH M. MARCUS
CARL BOETTIGER	DAVID GREENBERG	MILTON J. RAISBECK
SAMUEL BRADBURY	HUBERT V. GUILÉ	MILTON B. ROSENBLÜTH
ARTHUR F. CHACE	MEDWIN LEALE	HOMER F. SWIFT
FRANK B. CROSS	ROBERT L. LEVY	CORNELIUS J. TYSON

Neurology and Psychiatry

SAMUEL T. ARMSTRONG	LELAND E. HINSIE	HERMAN SELINSKY
LEO M. DAVIDOFF	GEORGE H. HYSLOP	GEORGE STEVENSON
SOL W. GINSBURG	BERNARD SACHS	HARRY M. TIEBOUT

Obstetrics and Gynecology

DAVID N. BARROWS	MORRIS LEFF	WALTER B. MOUNT
WALTER T. DANNREUTHER	HOWARD E. LINDEMAN	FRANCIS W. SOVAK
FREDERICK C. FREED	JOHN F. McGRATH	WILBUR WARD
ALFRED M. HELLMAN	MAX D. MAYER	SOLOMON WIENER

Ophthalmology

W. GUERNSEY FREY, JR.	JOSEPH LEVINE	MARK J. SCHOENBERG
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Orthopaedic Surgery

JOSEPH BUCHMAN	ROBERT K. LIPPMAN	H. D. SONNENSCHNEIN
ROBERT EDW. HUMPHRIES	FREDERICK J. MATTHEWS	ARMITAGE WHITMAN
WILLIAM H. IRISH	SETH SELIG	

Otolaryngology

RICHARD T. ATKINS	THOMAS J. HARRIS	JOHN M. LORÉ
JAMES W. BABCOCK	WALTER L. HORN	SAMUEL McCULLAGH
CORNELIUS G. COAKLEY	LEE M. HURD	PERCY E. D. MALCOLM
JAMES F. FAULKNER	DAVID H. JONES	JACOB L. MAYBAUM
HENRY HALL FORBES	JOHN D. KERNAN	WM. WALLACE MORRISON

Pediatrics

ADOLPH G. DE SANCTIS	CHARLES HERRMAN	BRET RATNER
TEN EYCK ELMENDORF	ALFRED F. HESS	WILLIAM ST. LAWRENCE
HAROLD HERMAN	F. ELMER JOHNSON	PHILIP M. STIMSON

Radiology

LEON T. LEWALD	WILLIAM H. STEWART
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Surgery

MILTON BODENHEIMER	EDWARD V. DENNEEN	LUCIUS A. SALISBURY
IRA COHEN	CARL EGERS	GEORGE H. SEMKEN
RALPH COLP	EUGENE H. EISING	DE WITT STETTEN
CONDUCT W. CUTLER, JR.	HENRY H. RITTER	ARTHUR S. W. TOUROFF

Urology

CLARENCE G. BANDLER	GEORGE W. FISH	WALTER H. McNEIL, JR.
GEORGE F. CAHILL	EDWARD F. KILBANE	JULIUS J. VALENTINE

SIXTH ANNUAL GRADUATE FORTNIGHT

A Postgraduate Two Weeks Devoted to Metabolic Diseases

OCTOBER 23 TO NOVEMBER 3, 1933

"DISORDERS OF METABOLISM"

The Program Comprises

AFTERNOON CLINICS, EVENING MEETINGS, AND A
SCIENTIFIC EXHIBIT

I. HOSPITAL CLINICS

Specially arranged clinical programs will be presented in fifteen of New York's leading hospitals. Among the clinicians who will participate are:

F. M. Allen	Ella Fishberg	Herman Lande	Irving Pardee	H. J. Spencer
A. Alving	R. T. Frank	J. F. Landon	H. S. Patterson	H. J. Stander
B. I. Ashe	J. M. Freston	J. S. Leopold	Edward Tolstoi	Alfred Stengel
George Baehr	L. F. Frissell	Joseph Lintz	Maurice Pomeranz	Walter Stenson
F. H. Bartlett	Jacob Geiger	R. F. Loeb	E. P. Ralli	J. E. Sutton
William Bierman	H. R. Geyelin	L. S. Loizeaux	C. P. Rhoads	H. C. Thacher
Sol Biloon	G. M. Goodwin	T. T. Mackie	John Rogers	Frederick Tilney
H. L. Blumgart	R. H. Halsey	David Marine	M. A. Rothschild	Abraham Tow
A. S. Blumgarten	W. P. Healy	A. T. Martin	E. B. Sanford	J. J. Valentine
R. E. Brennan	I. W. Held	Howard Mason	B. J. Sanger	D. D. Van Slyke
Harlow Brooks	G. W. Henry	W. S. McCann	Bela Schick	Martin Vorhaus
W. B. Castle	E. L. Hunt	A. S. McQuillan	Kaufman Schlivek	Bruce Webster
H. W. Cave	Peter Irving	H. D. Meeker	Herman Schwarz	Davenport West
A. E. Cohn	Leopold Jaches	H. W. Meyer	J. R. Scott	W. C. White
B. B. Crohn	F. E. Johnson	Henry Milch	Ephraim Shorr	R. M. Wilder
F. M. Donehue	J. E. J. King	H. O. Mosenthal	J. J. Short	W. R. Williams
G. S. Dudley	S. E. King	B. S. Oppenheimer	P. E. Smith	I. S. Wright

II. EVENING SESSIONS

The subjects and speakers at Academy meetings will be :

Total energy exchange in relation to clinical medicine . . .	Eugene F. DuBois
The metabolism of fever	Harold E. Himwich
Metabolism in hyperthyroidism and hypothyroidism	Walter W. Palmer
The surgical treatment of hyperthyroidism	Frank H. Lahey
Acidosis and alkalosis	Donald D. Van Slyke
Mineral metabolism	Joseph C. Aub
Fluid distribution and edema	A. Ashley Weech

- Dehydration and medical shock Dana W. Ashley
 Congenital anomalies of metabolism with special reference to
 cystinuria and myopathies Frank Reed
 On the disturbances called "gouty" and their treatment Edward L. Allen
 Round Table Conference on diabetes mellitus Rollin T. Woodyatt,
 Priscilla White, Nella B. Foster, Herman O. McCollum,
 William S. Ladd, H. Reade Geyher
 Clinical and biologic considerations of obesity and
 certain allied conditions Albert A. Teyssie
 A critical estimate of the value of laboratory procedures
 in disorders of metabolism John P. Peters
 General review of our present knowledge of vitamins H. C. Sherman
 Disorders due to moderate deficiency of vitamins Samuel W. Church
 Discussion of last two papers Alfred F. Hess and Lafayette B. Mendel
 The influence of the diencephalon and hypophysis upon
 general autonomic functions Wilder Penfield
 Non-diabetic ketosis in children. Dehydration in infants Oscar M. Schloss
 Hyperparathyroidism and its relationship to diseases of bone Henry L. Jule
 Metabolic disturbances in relation to the teeth Charles F. Bodecker

III. SCIENTIFIC EXHIBIT

An extensive scientific exhibit bearing upon the various aspects of the general subject will be held at the Academy concurrent with the Fortnight and for an added week thereafter. Lecture demonstrations at regular intervals will be given by many of the exhibitors.

A COMPLETE PROGRAM AND REGISTRATION BLANK
 WILL BE MAILED ON REQUEST

RECENT ACCESSIONS TO THE LIBRARY

MAY

- Abeloos, M. *La régénération et les problèmes de la morphogénèse.*
 Paris, Gauthier-Villars, 1932, 253 p.
 Adler, F. H. *Clinical physiology of the eye.*
 N. Y., Macmillan, 1933, 406 p.
 Alessandrini, A.; Pampana, E. & Sabatucci, M. *Gli esami di laboratorio,
 tecnica e diagnostica.*
 Roma, Pozzi, 1932, 635 p.
 American and Canadian hospitals. Edited by J. C. Fiffeld.
 Minneapolis, Midwest Publishers Co., [1933], 1560 p.

Baar, V. Wetter und Krankheiten.

Wien, "Ars Medici", 1932, 171 p.

Bailey, P. Intracranial tumors.

Springfield, Ill., Thomas, 1933, 475 p.

Beekman, F. Office surgery.

Phil., Lippincott, [1932], 402 p.

Bernheim, G. & Guyot, M. Traité d'analyses par les rayons ultra-violetes filtrés.

Paris, Maloine, 1932, 363 p.

von Bertalanffy, L. Theoretische Biologie.

Berlin, Borntraeger, 1932, v. 1.

Beylot, E. M. & Baudrimont, A. Manuel théorique et pratique d'histologie.
3. éd.

Paris, Vigot, 1932, 670 p.

Bloomfield, A. L. & Polland, W. S. Gastric anacidity, its relations to disease.

N. Y., Macmillan, 1933, 188 p.

Blumenthal, F. & Jaffé, K. Ekzem und Idiosynkrasie.

Berlin, Karger, 1933, 188 p.

Boyd, W. Surgical pathology. 3. éd.

Phil., Saunders, 1933, 866 p.

Bridges, M. A. Dietetics for the clinician.

Phil., Lea, 1933, 666 p.

Brocher, H. Le mythe du héros et la mentalité primitive.

Paris, Alcan, 1932, 126 p.

Cameron, H. C. The nervous child at school.

London, Milford, 1933, 160 p.

Cavina, G. Tecnica della resezione gastrica.

Bologna, Cappelli, 1932, 138 p.

Chirurgische Operationslehre (Bier, Braun, Kümmell). 6. Aufl.

Leipzig, Barth, 1933, v. 1.

Clark, A. J. The mode of action of drugs on cells.

London, Arnold, 1933, 298 p.

Cockayne, E. A. Inherited abnormalities of the skin and its appendages.

London, Milford, 1933, 394 p.

Collie (Sir) J. Workmen's compensation; its medical aspect.

London, Arnold, 1933, 160 p.

Collins, J. Some aspects of the art and practice of medicine.

Lawrence, Univ. of Kansas, 1933, 83 p.

Dietrich, A. Allgemeine Pathologie und pathologische Anatomie.

Leipzig, Hirzel, 1933, v. 1.

Dobson, M. B. Binocular vision and the modern treatment of squint.

London, Milford, 1933, 107 p.

Dorée, C. The methods of cellulose chemistry.

London, Chapman, 1933, 499 p.

Drinker, C. K. & Field, M. E. Lymphatics, lymph and tissue fluid.

Balt., Williams, 1933, 254 p.

- Duclos, H. Laennec.
[Paris], Flammarion, [1932], 282 p.
- Durupt, A. L'interférométrie en clinique.
Paris, Doin, 1932, 204 p.
- Galt, W. Phyloanalysis.
London, Paul, 1933, 151 p.
- Guieysse-Pellissier, A. L'état réactionnel. Évolution du tissu lymphoïde en réaction.
Paris, Alcan, 1932, 224 p.
- Haselhoff, E.; Bredemann, G. & Haselhoff, W. Entstehung, Erkennung und Beurteilung von Rauchschäden.
Berlin, Borntraeger, 1932, 472 p.
- Imming, E. Kompendium der konservierenden Zahnbehandlung und des Füllens der Zähne.
Berlin, Dentistischer Verlag, 1933, 332 p.
- Klüver, H. Behavior mechanisms in monkeys.
Chic., Univ. of Chic. Press, [1933], 387 p.
- La Barre, J. Diabète et insulïnémie.
Paris, Masson, 1933, 284 p.
- Laignier-Terrasse, P. Némathelminthes et plathelminthes de l'appareil oculaire humain.
Paris, Maloine, 1932, 185 p.
- Livre jubilaire offert au Professeur Hartmann par ses amis et ses élèves.
Paris, Masson, 1932, 679 p.
- Lower, W. E. & Nichols, B. H. Roentgenographic studies of the urinary system.
St. Louis, Mosby, 1933, 812 p.
- Lüttge, W. Zangengeburt im Röntgenbild.
München, Reinhardt, 1933, 55 p.
- Melzer, E. Der Einfluss der Tuberkulose auf das Seelenleben des Kranken.
Stuttgart, Enke, 1933, 168 p.
- Miles, A. & Wilkie, D.P.D. Operative surgery.
London, Milford, 1933, 590 p.
- Montpellier, J. & Manceaux, A. Pratique hématologique.
Paris, Doin, 1933, 328 p.
- Morche, R. Nouveau guide du mutilé de l'oreille et des personnes sourdes, demi-sourdes et dures d'oreille. [2. éd.].
Nice, Revue de l'ouïe, [1932?], 259 p.
- Obstetrics and gynecology. Edited by A. H. Curtis.
Phil., Saunders, 1933, v. 1.
- Oppenheimer, C. Chemische Grundlagen der Lebensvorgänge.
Leipzig, Thieme, 1933, 298 p.
- Parturier, G.; Goiffon, R. & Raulot-Lapointe, G. Contribution du laboratoire au diagnostic des maladies du foie.
Paris, Vigot, 1932, 155 p.

- Ramazzini, B. Diseases of tradesmen . . . together with biographical notes . . . compiled by H. Goodman.
N. Y., Medical Lay Press, [1933], 95 p.
- Regenbogen, J. II. Le rôle biologique de la catalase dans le métabolisme d'énergie.
Haarlem, Bohn, 1932, 139 p.
- Robin, G. C. A. Enfants d'aujourd'hui. La paresse est-elle un défaut ou une maladie?
[Paris], Flammarion, [1932], 283 p.
- Rongy, A. J. Abortion: legal or illegal?
N. Y., Vanguard Press, 1933, 212 p.
- Schmidt, H. Fortschritte d'er Serologie.
Dresden, Steinkopff, 1933, 191 p.
- Sebileau, P. Cancer de la langue.
Paris, Doin, 1932, 231 p.
- Sharp, B. B. Neurological effects of syphilis; diagnosis and treatment.
London, Milford, 1933, 92 p.
- Sinnott, E. W. & Dunn, L. C. Principles of genetics. 2. ed.
N. Y., McGraw-Hill, 1932, 441 p.
- Smart, M. The principles of treatment of muscles and joints by graduated muscular contractions.
London, Milford, 1933, 217 p.
- Sternberg, C. Lehrbuch der allgemeinen Pathologie und der pathologischen Anatomie. 2. Aufl.
Berlin, Vogel, 1933, 650 p.
- Uffreduzzi, O. Trattato di patologia chirurgica, generale e speciale.
Torino, Unione Tip.-Edit. Torinese, 1933, v. 1.
- Yearsley, P. M. The sanity of Hamlet
London, Bale, 1932, 101 p.

HOURS DURING THE SUMMER

From June 15 until September 15 inclusive, the Library will be open on week days from 9 a.m. to 5 p.m., on Wednesday from 9 a.m. to 10:30 p.m., and on Sundays from 10 a.m. to 5 p.m.

PROCEEDINGS OF ACADEMY MEETINGS

STATED MEETINGS

Tuesday Evening, May 16, at 8:30 o'clock

Program arranged in cooperation with

SECTION OF MEDICINE

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Fellows; c. Report of Nominating Committee; d. Presentation of Diplomas; e. Election of officers—Section of Medicine, For Chairman—Henry J. Spencer; For Secretary—Randolph West; For member of Advisory Committee—William S. Ladd

II. PAPER OF THE EVENING

"The Prognosis of Heart Disease", Ronald T. Grant, University College Hospital Medical School, London

Discussion, Alfred E. Cohn, Lewis A. Conner

Thursday Evening, May 18, at 8:30 o'clock

THE EIGHTH HARVEY LECTURE

"Humoral Transmission of Nervous Impulses", Otto Loewi, Professor of Pharmacology, University of Graz.

This lecture took the place of the second Stated Meeting of the Academy for May.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, May 2, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—Leo Spiegel; For Secretary—Eugene F. Traub; For member of Advisory Committee—Paul E. Bechet

II. PRESENTATION OF PATIENTS

- a. From the City Hospital; b. From the Beth Israel Hospital; c. From the Sea View Hospital

III. GENERAL DISCUSSION

JOINT MEETING

SECTION OF NEUROLOGY AND PSYCHIATRY

AND THE

NEW YORK NEUROLOGICAL SOCIETY

Tuesday Evening, May 2, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—Clarence P. Oberndorf; For Secretary—C. Burns Craig; For members of Advisory Committee—Byron Stookey—five years; Leon H. Cornwall—three years (to fill the unexpired term of Michael Osnato, deceased)

II. CLINICAL PRESENTATIONS

- a. Psychic epileptic equivalents in frontal lobe lesions (2 cases) (15 min.), Leo M. Davidoff; b. 1. Spastic hemiplegia in an infant. Produced by a congenital cyst entirely replacing the cerebellar vermis; 2. Gasserian ganglion syndrome produced by a tumor of unusual nature (20 min.); 3. Spinal metastasis from a clinical benign thyroid, John E. Scarff; c. 1. Hemangioma (Lindau) of cerebellum; 2. Meningioma presenting trigeminal signs (20 min.); 3. Primary tumor of the gasserian ganglion, Ira Cohen

III. PAPER OF THE EVENING

- Some histological features of glioblastoma multiforme (lantern slides) (20 min.), Edwin M. Deery

IV. DISCUSSION

SECTION OF SURGERY

Friday Evening, May 5, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—Ralph Colp; For Secretary—Guilford S. Dudley; For member of Advisory Committee—Wm. Barclay Parsons

II. PRESENTATION OF INSTRUMENT AND CASES

- a. An occlusion button for intestinal fistulae, H. Dawson Furniss; b. Empyema necessitatis of the gall bladder, William T. Doran; c. 1. Osteomyelitis occulta of the second rib. Treatment; 2. Treatment of the abdominal wound in general peritonitis (three cases), Philip D. Allen.

III. PAPERS OF THE EVENING

- a. Acute empyema in children, J. V. Bohrer; b. Intrapulmonary empyema, Arthur Touroff

Discussion, Harold Neuhof, Fenwick Beekman, Howard Lilienthal

IV. GENERAL DISCUSSION

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Wednesday Evening, May 10, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—Russell L. Cecil; For Secretary—Jerome P. Webster; For members of Advisory Committee—Howard Reid Craig—five years; Alfred M. Hellman—one year (to fill the unexpired term of Bernard Sachs, resigned)

II. PAPERS OF THE EVENING

- a. St. Francis and medieval medicine, Edward F. Hartung; b. The last few hours of Nelson's life, Paul E. Bechet; c. Ancient dentistry in the old and new world (with lantern slides), Bernard W. Weinberger

III. GENERAL DISCUSSION

The Chairman referred to the Beaumont Celebration to be held in October, 1933.

SECTION OF PEDIATRICS

Thursday Evening, May 11, at 8:00 o'clock

I. EXECUTIVE SESSION

Election of Officers, For Chairman—Martha Wollstein; For Secretary—Harry Bakwin; For member of Advisory Committee—John Caffey

II. SINGLE CASE PRESENTATION WAS GIVEN BY THE FOLLOWING HOSPITALS:

St. Luke's Hospital, A case of syphilitic hemiplegia

Presented by, A. M. Stevens (by invitation)

Roosevelt Hospital, Late results of splenectomy in sickle cell anemia

Presented by, John Fitch Landon

Polyclinic Hospital, Blood dyscrasia

Presented by, W. Morgan Hartshorn

Post-Graduate Hospital, Calcinosis circumscripta with generalized scleroderma

Presented by, Margaret R. Reynolds

New York Hospital, Periodic familial paralysis

Presented by, Ludwig Schoenthal (by invitation)

Mt. Sinai Hospital, Progeria

Presented by, Martin L. Stein (by invitation)

Lenox Hill Hospital, A case of foreign body in air-passage in an infant aged 22 months

Presented by, Julian Leo Rogatz

Hospital for Joint Diseases, Influenzal meningitis complicating fractured skull

Presented by, Leon Antell (by invitation)

Bellevue Hospital, Quartan malaria following transfusion

Presented by, Charles Hendee Smith

Babies' Hospital, Intratracheal rupture of tuberculous bronchial lymph node

Presented by, Russell B. Scobie (by invitation)

SECTION OF OPHTHALMOLOGY

Monday Evening, May 15, at 8:30 o'clock

I. EXECUTIVE SESSION

a. Reading of the Minutes; b. Election of Officers, For Chairman—Webb W. Weeks; For Secretary—W. G. Frey; For member of Advisory Committee—Mark J. Schoenberg; c. Remarks by the retiring chairman

II. PAPERS OF THE EVENING

a. A cosmetic lens for high myopia (5 minutes), Harold G. Noyes, Theodore E. Obrig (by invitation); b. When is the best time to operate children with strabismus (10 minutes), John H. Dunnington; c. The retraction syndrome. Indications for surgical treatment (10 minutes), Rudolph Aebli (by invitation); d. The prolonged occlusion test with illustrated cases (10 minutes),

Wendell L. Hughes; e. Indications for operation in combined vertical and lateral strabismus (15 minutes), James W. White; f. Remarks on the intimate relation between ophthalmology and neurology. Some reminiscences, Bernard Sachs

DURING THE DEMONSTRATION PERIOD (7 TO 8:30 o'clock)

- a. Demonstration of the Maddox synoptophore, Elizabeth K. Stark (by invitation); b. A case of retinitis proliferans, Wendell L. Hughes; c. A case of bilateral paresis of internal recti and inferior obliques, Frank C. Keil; d. Cases of disfunction of ocular muscles, James W. White, R. Aebli (by invitation), Wendell L. Hughes, S. A. Agatson; e. An exhibit of old and rare instruments, ophthalmoscopes, spectacles, etc. of interest to ophthalmologists. The New York Academy of Medicine, The Guild of Prescription Opticians of Greater New York, and John N. Evans

SECTION OF MEDICINE

Tuesday Evening, May 16, at 8:30 o'clock

Program arranged as a Stated Meeting

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Fellows; c. Report of Nominating Committee; d. Presentation of Diplomas; e. Election of officers—Section of Medicine, For Chairman—Henry J. Spencer; For Secretary—Randolph West; For member of Advisory Committee—William S. Ladd

II. PAPER OF THE EVENING

"The Prognosis of Heart Disease", Ronald T. Grant, University College Hospital Medical School, London

Discussion, Alfred E. Cohn, Lewis A. Conner

A collation was served after adjournment, to which Fellows and guests were invited.

SECTION OF GENITO-URINARY SURGERY

Wednesday Evening, May 17, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—C. Travers Stepita; For Secretary—Augustus Harris; For member of Advisory Committee—Meredith F. Campbell

II. PRESENTATION OF INSTRUMENT

Direct application of ultra-violet radiation to the genito-urinary tract, Samuel Lubash

III. PRESENTATION OF PAPER

Calculous pyonephrosis, I. E. Nash (by invitation)

Discussion, John B. Connors, Edward L. Keyes

IV. PAPER OF THE EVENING

Nongonorrheal urethral discharge (An etiological study of 333 cases), P. S. Pelouze, Philadelphia (by invitation)

V. GENERAL DISCUSSION

SECTION OF OTOLARYNGOLOGY

Wednesday Evening, May 17, at 8:00 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—Samuel J. Kopetzky; For Secretary—Wm. Wallace Morrison; For member of Advisory Committee—David H. Jones

II. PRESENTATION OF INSTRUMENTS AND CASE

- a. The tubercular larynx and "up-hill" feeding, C. D. Van Wagenen;
 - b. 1. A new dilator for a closed orifice of the eustachian tube;
 - 2. A new self advancing catheter for lipiodol introduction into the lung, Louis K. Pitman (by invitation);
- c. Tracheofistulization for prolonged pulmonary catheterization, M. J. Mandelbaum

III. DEMONSTRATION

The use of the fresh sheep head in teaching the technique of the sub-mucous resection of the nasal septum, Wm. Wallace Morrison

IV. CASE REPORTS

- a. Presentation of four cases of brain abscesses originating in the otorhinological foci, Leo M. Davidoff; b. Report of two cases of neoplasm in the external auditory canal, operation, Hugh B. Blackwell; c. Acute mastoiditis complicated with a septic blood picture and also lesions resembling agranulocytic angina, Arthur J. Herzig

Discussion, J. Pincus (by invitation)

- d. Otogenous streptococcus meningitis with recovery, Louis Kleinfeld

V. PAPERS OF THE EVENING

- a. Neutropenia, Paul Reznikoff; b. The metabolic preparation of patients for laryngectomy and their post-operative care, Harris A. Houghton

Discussion, Arthur S. Wilson

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, May 19, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes; b. Election of Officers, For Chairman—Paul C. Colonna; For Secretary—Leo Mayer; For member of Advisory Committee—Mather Cleveland

II. PRESENTATION OF CASES

- a. From the Orthopedic Service of the Post-Graduate Hospital, 1. Construction of a thumb congenitally absent; 2. Bone graft for tuberculosis of the spine (after 21 years), Fred H. Albee; 3. Recurrent dislocation of the temporomandibular joint, Leo Mayer; 4. Old double congenital dislocation of the hip, Charles Ogilvy, Wm. Hadden Irish; 5. Multiple fractures of the femur, pelvis and tibia treated by bone peg and living suture, Charles Murray Gratz (by invitation); b. From the New York Orthopaedic Hospital, 1. Echinococcus cyst of the femur, M. Beckett Howorth (by in-

vitation); 2. An unusual case of coxa vara, James W. Toumey (by invitation); 3. A case of scoliosis treated by spine fusion, John T. Saunders (by invitation); 4. Gumma of the tendo Achillis, George A. L. Inge (by invitation); 5. A case of ununited fifth lumbar arch, Halford Hallock (by invitation); c. From the Orthopedic Service of Mt. Sinai Hospital, 1. Mediastinal abscess due to old thoracic Pott's disease with complications, Victor J. Jacobsohn; 2. Osteo-chondro-sarcoma of first phalanx of great toe—treated by excision and bone transplant, Robert K. Lippmann; 3. Acute atrophy of foot; 4. Early metastasis of epithelioma of foot, Seth Selig; 5. Corrective finger splint, Edgar D. Oppenheimer

III. GENERAL DISCUSSION

SECTION OF OBSTETRICS AND GYNECOLOGY
 Tuesday Evening, May 23, at 8:30 o'clock

I. EXECUTIVE SESSION

a. Reading of the Minutes; b. Election of Officers, For Chairman—Frederick C. Freed; For Secretary—Harvey B. Matthews; For member of Advisory Committee—Samuel J. Scadron

II. PAPERS OF THE EVENING

a. Abdominal and pelvic fascias with surgical applications, Joshua W. Davis (by invitation)
 Discussion, Dougal Bissell, Ralph A. Hurd
 b. Split pelvis—its relation to pregnancy, Locke L. Mackenzie, Discussion, Leon T. LeWald; c. Changes in the urinary tract during pregnancy, Irving J. Stumpf (by invitation); d. Dystocia due to cervical operations—reports of three cases, Murray L. Brandt, Discussion, Harvey B. Matthews; e. Gynatresia, Onslow A. Gordon, Jr. (by invitation)

Discussion opened by, Harvey B. Matthews, Oscar Glassman

AFFILIATED SOCIETIES NEW YORK ROENTGEN SOCIETY

In affiliation with The New York Academy of Medicine
 Monday Evening, May 15, at 8:30 o'clock

I. 8:30 to 9:00 p.m. Demonstration and discussion of interesting cases

II. 9:00 p.m. "Medico-legal expert testimony as it applies to the roentgenologist", Arial W. George, Boston (by invitation)

III. GENERAL DISCUSSION

IV. EXECUTIVE SESSION

New York Meeting of the
SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE
Under the auspices of
THE NEW YORK ACADEMY OF MEDICINE
Wednesday Evening, May 17, at 8:15 o'clock

- I. A simply prepared broth for producing hemolytic streptococcal hematoxin (streptolysin), H. F. Swift, B. E. Hodge
- II. Studies of the etiology of influenza, A. R. Dochez, K. C. Mills, Yale Kneeland, Jr.
- III. Influence of salt upon diffusion from bacterial cells, C. E. A. Winslow, H. H. Walker
- IV. Growth characteristics of rough and smooth acid fast bacteria living in microculture (illustrated with micro motion pictures), R. W. G. Wyckoff
- V. Cellular response to acetone—soluble lipoids from mycobacteria, K. C. Smithburn, F. R. Sabin (Introduced by F. P. Gay)
- VI. Total and thyroxine iodine content of thyroid gland after injection of saline anterior pituitary extracts, G. L. Foster, A. B. Gutman, E. B. Gutman (Introduced by W. W. Palmer)
- VII. Failure of a mouse carcinoma material to enhance a mouse sarcoma, A. E. Casey
- VIII. Acetylation studies, B. Harrow, A. Mazur, C. T. Sherwin
- IX. Active immunization against tetanus in humans of different ages, Edith Lincoln (Introduced by W. H. Park)

NEW YORK PATHOLOGICAL SOCIETY
In affiliation with The New York Academy of Medicine
Thursday Evening, May 25, at 8:30 o'clock

- I. Demonstration of pathological specimens
 - II. PAPERS OF THE EVENING
 - a. Myxoma of the tricuspid valve, Thomas C. Jaleski (by invitation);
 - b. Two tumors of the thymus, one with distant metastases, Angelo M. Sala, Elma Barany; c. An unusual case of ischemic degeneration of the posterior pituitary, Dominic A. De Santo (by invitation); d. Myoblastoma of the striated muscle, Paul Klemperer
 - III. EXECUTIVE SESSION
-

MEMBERS OF ADVISORY COMMITTEES OF SECTIONS 1933-34

Dermatology and Syphilology

CITAS. M. WILLIAMS
JEROME KINGSBURY
GEORGE M. MACKEE
HOWARD FOX
PAUL E. BECHET

Surgery

EDWIN BEER
WILLIAM C. WHITE
OTTO C. PICKHARDT
ROBERT H. KENNEDY
WM. BARCLAY PARSONS

Neurology and Psychiatry

IRVING H. PARDEE
MOSES KESCHNER
LEON H. CORNWALL
(To fill the unexpired term of
MICHAEL OSNATO, deceased)
JOSEPH H. GLOBUS
BYRON STOOKEY

Historical and Cultural Medicine

ALFRED M. HELLMAN
(To fill the unexpired term of
BERNARD SACHS, resigned)
IRA OTIS TRACY
FREDERICK PATERSON
LOUIS F. BISHOP
HOWARD R. CRAIG

Pediatrics

ROYAL S. HAYNES
F. ELMER JOHNSON
HUGH CHAPLIN
HERBERT B. WILCOX
JOHN CAFFEY

Ophthalmology

BERNARD SAMUELS
JOHN M. WHEELER
ERNEST F. KRUG
HERBERT W. WOOTTON
MARK J. SCHOENBERG

Medicine

EDGAR STILLMAN
GEORGE BAEHR
LEWIS F. FRISSELL
MILLS STURTEVANT
WILLIAM S. LADD

Genito-Urinary Surgery

J. STURDIVANT READ
STANLEY R. WOODRUFF
ARCHIE L. DEAN, JR.
THOMAS J. KIRWIS
MEREDITH F. CAMPBELL

Otolaryngology

WESTLEY M. HUNT
CLARENCE H. SMITH
FRANCIS WHITE
THOMAS J. HARRIS
DAVID H. JONES

Orthopedic Surgery

EDGAR D. OPPENHEIMER
ARMITAGE WHITMAN
ALAN DEFOREST SMITH
ISADORE ZADEK
MATHER CLEVELAND

Obstetrics and Gynecology

REGINALD M. RAWLS
WILLIAM E. CALDWELL
HERVEY C. WILLIAMSON
GERARD L. MOENCH
SAMUEL J. SCADRON

FELLOWS ELECTED

MAY 16, 1933

Girsch D. Astrachan	237 East 20 Street
Abram Wilbur Duryce	865 First Avenue
Wolfgang Grethmann	8910—35 Avenue, Jackson Heights, N. Y.
Claude Edwin Heaton	136 East 64 Street
John Charles Kilroe	1114 Madison Avenue
F. Philip Lowenfish	25 Central Park West
Robert Hall McConnell	65 Central Park West
Abraham Max Rabiner	890 Park Place, Brooklyn, N. Y.
Armin St. George	19 West 55 Street
Charles Franklyn Sims.	2710 Morris Avenue
Robert Folger Solley	25 East 92 Street
Matthew Walzer	255 Eastern Parkway, Brooklyn, N. Y.
Audrey Goss Morgan	1466 Ogden Street, Washington, D. C.

DEATHS OF FELLOWS OF THE ACADEMY

WILLIAM HOWARD FARRINGTON, M.D., Raubsville, Pa.; graduated in medicine from Bellevue Hospital Medical College, New York City, in 1872; elected a Fellow of the Academy June 4, 1885; died, May 18, 1933

BENJAMIN FRANKLIN OCHS, M.D., 865 West End Avenue, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1886; elected a Fellow of the Academy February 3, 1910; died, May 25, 1933. Dr. Ochs was a Fellow of the American Medical Association, a member of the County and State Medical Societies, the Manhattan Dermatological Society, the Bronx Dermatological Society, a member of the Society of Alumni of Lebanon Hospital, and Consulting Dermatologist to Fordham and Rockaway Beach Hospitals. For a number of years he was Professor of Dermatology in Fordham Medical School.

J. FLANDREAU VAN FLEET, M.D., 17 East 38 Street, New York City; graduated in medicine from Fordham University, New York, in 1918; elected a Fellow of the Academy November 3, 1927; died, June 5, 1933. Dr. Van Fleet was a Fellow of the American Medical Association, a member of the County and State Medical Societies, a member of the Society of Alumni of Manhattan Eye, Ear and Throat Hospital; ophthalmological surgeon to Manhattan Eye, Ear and Throat Hospital and consulting ophthalmologist to Nyack Hospital.

STANDING COMMITTEES OF THE ACADEMY 1933

COMMITTEE ON ADMISSION

MERVIN C. MYERSON, <i>Chairman</i>	WILLIAM E. STUDDIFORD, Jr.
WARD J. MACNEAL	HAROLD T. HYMAN
HOWARD H. MASON	ALEXANDER R. STEVENS
EDGAR STILLMAN	HENRY A. RILEY
CONSTANTINE J. MACGUIRE, Jr.	A. BENSON CANNON
ARTHUR H. TERRY, Jr.	LEOPOLD JACHES

COMMITTEE ON LIBRARY

J. RAMSAY HUNT, <i>Chairman</i>	SAMUEL W. LAMBERT
ALFRED E. COHN	ELI MOSCHCOWITZ
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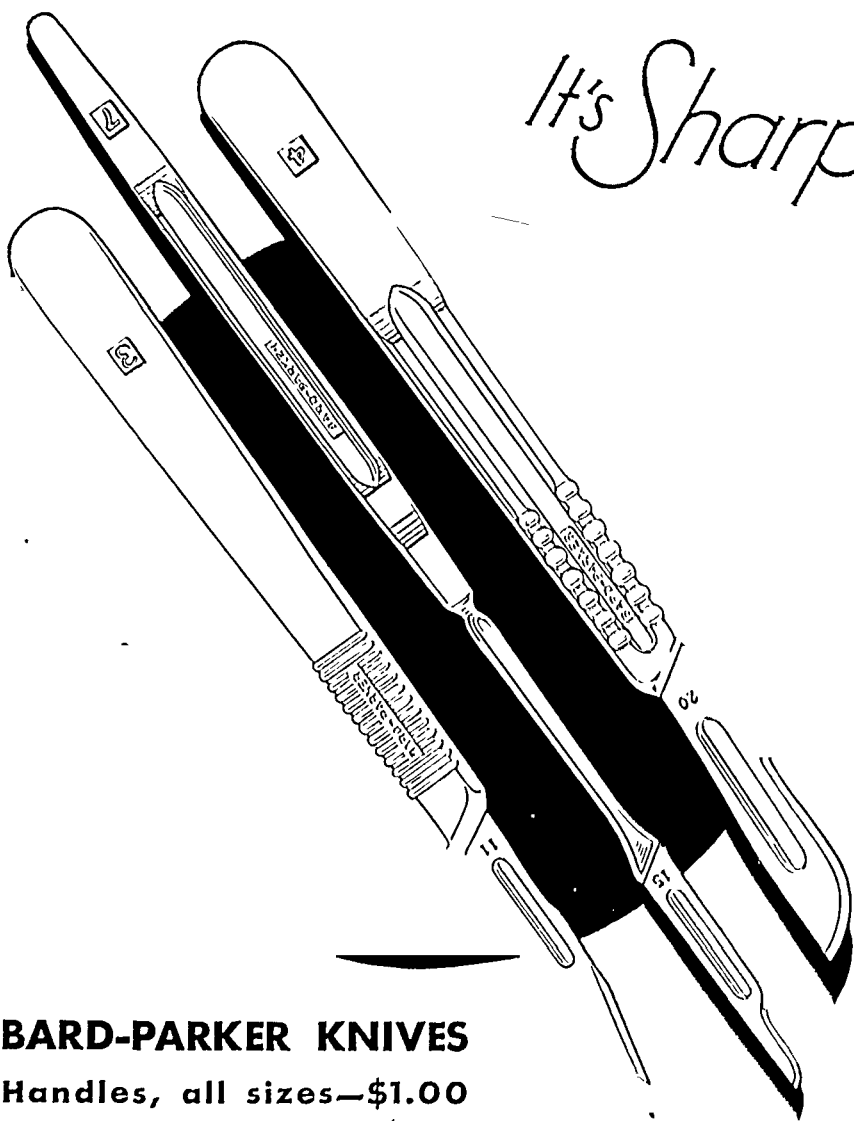
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MAY, 1933

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CONTENTS ·

Editorial:

The Medical Literature of France, F. H. Garrison	267
------------------------------------------------------------	-----

Symposium: Recent Studies on the Effects of Tobacco in Man:

Recent Immunologic Experiments in Tobacco Hypersensitivity, Marion B. Sulzberger	294
--------------------------------------------------------------------------------------------	-----

Tobacco Sensitiveness in Thrombo-Angiitis Obliterans, Migrating Phlebitis and Coronary Artery Disease, Joseph Harkavy	318
---------------------------------------------------------------------------------------------------------------------------------	-----

Discussion:

Harlow Brooks	323
-------------------------	-----

Robert H. Halsey	325
----------------------------	-----

Lewis A. Conner	327
---------------------------	-----

Fee-Splitting. Report of the Committee on Professional Standards	329
----------------------------------------------------------------------------	-----

Recent Accessions to the Library	331
--------------------------------------------	-----

Proceedings of Academy Meetings	338
-------------------------------------------	-----

Honorary Fellows and Fellows Elected	349
------------------------------------------------	-----

Council Resolutions: George David Stewart	351
-----------------------------------------------------	-----

Deaths of Fellows of the Academy	353
--------------------------------------------	-----

Corrections	354
-----------------------	-----

Donations to the Library Funds	354
------------------------------------------	-----

Form of Bequests	354
----------------------------	-----

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BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

VOL. IX

MAY, 1933

No. 5

EDITORIAL

THE MEDICAL LITERATURE OF FRANCE¹

"To attempt to isolate the history of medicine from medical writings only," said Billings, "is like cutting a narrow strip from a piece of tapestry and speculating upon the origin and purpose of the cut threads of patterns that may be found in it." We must consider the warp as well as the woof, the woods as well as the trees. The comparative study of medical literature has shown conclusively that while the theoretic or pragmatic medicine of any country or period is contained in the basic texts and text books, the most realistic sidelights on its actual, every day status are to be gleaned from poets, dramatists, novelists and other practitioners of creative and imaginative literature. In the case of France, a huge hexagon of territory, largely isolated from the rest of Europe by oceanic and mountain barriers, the serious development of medicine was to be intermitted for centuries by the lengthy struggle for national unity out of a loose congeries of provincial areas, controlled by capricious feudal overlords. The end was well nigh attained under Philippe Auguste (1180-1223), ablest of the Capets, obliterated by the ineptitude of the Valois in the Hundred Years War over English claims to the crown (1337-1453) and not finally compassed until Louis XI effected fusion by subjugating his rebellious vassals (1481). The development of the French language out of decomposed Latin, by assimilation of exotic elements, corresponds roughly with this tedious integrative process, in which the energies of the Normans were deflected into

¹Read at a meeting of the Romance Journal Club, Johns Hopkins University, Baltimore, on February 28, 1933.

the Crusades and the century of internecine warfare with England. There was the same waste of energy and money in the senseless wars of the Bourbons, with their consequence, the Revolution and the Napoleonic period, after which Republican France emerges as an administrative organization of eighty-three, eventually ninety departments, not unlike the states of the American union. The embryology and building up of nations in the Middle Ages was a painful, intricate process, seriously hampered by the Feudal System, and more easily and speedily accomplished in small countries, like England or Switzerland, than in larger areas, such as Germany or Italy, which did not attain to national unity until the year 1870.

The Latin medical literature of Italy dates back to the 11th century. That of France did not put in an appearance until 200 years later, while medical literature in the vernacular did not become consequential until after the invention of printing. Through the Latinization of the West and the conversion of the barbarians to Christianity, the medicine of the Dark Ages was to be monastic medicine, taught and cultivated by priests, who, along with the cold-storage plant at Byzantium, preserved the relics of the ancient learning. With the rise of the School of Salerno, South European medicine began to be secularized as a phase of university teaching. At the same time, it became Arabized, remaining under the sway of Islam up to the Renaissance, when people began to contact with reality, hence to think for themselves and so to express themselves in the mother tongue. Through the long, dreary middle period, the peoples of Europe were virtually nationless, "the indifferent children of the earth," as Shakespeare has it, and for a full thousand years after the downfall of the Western Empire, the medical literature of Europe was to be written and published mainly in Latin. From the development of the *lingua franca*, or pigeon French, out of Latin, Celtiberic, Moorish and Teutonic elements, came the *chansons de geste*, the *romans d'aventures* the *lais* and the *fabliaux*, to which we shall turn for a life-like picture of every day medicine in mediæval France². As to the actual

medical teaching, the monkish and professional physicians in the same period, we have providentially an admirable geomedical survey of Western France in the Middle Ages by Dubreuil-Chambardel, published by the Société française d'histoire de la médecine in 1914³.

Far from the four waterways and the military roads of mediæval France, hence relatively unaffected by the Norman invasion, stood the great basilica of Chartres, and here, at the end of the 10th century, Gerbert of Reims, with his pupils, Heribrand and Fulbert, taught and practiced medicine in the cloister schools attached to the cathedral. At the gates of Tours, on the right bank of the Loire, stood the Abbey of Marmoutier, a kind of mediæval university, which numbered among its medical students, the Angevin scholar, Marbodius, author of the celebrated therapeutic treatise on the virtues of stones (*liber de lapidibus*) and of other verses bearing upon medicine in the Abbé Migne's *Patrologie*. In the 8th century, the cloistral school attached to the basilica of St. Martin at Tours was directed by no less than Alcuin, who established in it a *scriptorium*, the best school of calligraphy in the Carolingean period. Among his pupils were Hrabanus Maurus, who wrote much on medicine and Hugo of Tours, who competes with Odo

²Oscar Kühn: Ueber Erwähnung und Schilderung von körperlichen Krankheiten und Körpergebrechen in altfranzösischen Dichtungen. 1. Teil. 8° Breslau, 1903. *Continued as*: Medizinisches aus der altfranzösischen Dichtung (Abhandl. z. Gesch. d. Med. VIII) 8° Breslau, 1904. *Also*: Franz Laue: Ueber Krankenbehandlung und Heilung in der Litteratur des alten Frankreichs. Göttingen diss. 8° Arnstadt, 1904. *Also*: Georg Manheimer: Etwas über die Aerzte im alten Frankreich nach mehreren alt-und mittel-französischen Dichtungen. Berlin diss. 8° Erlangen, 1890, (Roman. Forsch., Erlangen, 1891, VI, 581 *et seq.*).

³L. Dubreuil-Chambardel: Les médecins dans l'ouest de la France au XI^e et XII^e siècles. 8° Paris, 1914. For the clever grouping of provincial physicians, in which the French medical historians excel, see also: J. Roger: Les médecins normands du XII^e au XIX^e siècle. 8° Paris, 1890-95. Les médecins bretons. 8° Paris, 1900. P. Delaunay: Vieux médecins mayennais. 8° Paris, 1903. E.-A. Begin: Lettres sur l'histoire médicale du nord-est de la France. 8° Metz, 1840. A. Cartaz: Les médecins bressans. 8° Paris, 1902. A. Lesfargues-Lagrange: Nos médecins bordelais. 8° Bordeaux, 1878, etc.

of Meudon as one of the possible authors of the well-known herbal, *De virtutibus herbarum*, assigned to Macer Floridus. So too, in the capitularies and cartularies of all the claustral and charter house schools of Touraine, Poitou, Anjou, Maine and Normandy, we find abundant records of medical teaching and practice by the learned ecclesiastics associated with these foundations, as well as by laic or professional physicians. Strong men these, if we may judge of them by authenticated records and in the light of the stressful times in which they lived. In Western France, the record of monastic medicine would appear to have been better than most.

In this area and period, physician, pharmacist and surgeon were one and the same, although tonsuring, shaving and blood-letting were already delegated to that subalternized industrial who was to give so much trouble later, namely the barber, *barbitonsor* or *phlebotomus*; while medicinal simples were obtained at the shops of the herb-gatherers, who were variously called *herbarii*, *pigmentarii* or even *épiciers*. Venesection, too, was practiced by the monks themselves, the main indications being a plethoric habit of body and the temptations of the flesh. A doctor was known either as *physicus* or *medicus*, since *physica*, equated by Alcuin with natural science, was elsewhere or otherwise synonymous with medicine, while *chirurgus*, *apothecarius* and the vernacular expression *mire* also signified physician. In the *romans*, *chansons* and *fabliaux*, we find the *mire* to be, in some places, a sort of general assistant in all manner of diseases and injuries, in others occupied exclusively with external wounds, in others, a professional physician, educated at Salerno or Montpellier, whose functions were sometimes assumed by low-caste impostors (*le vilain mire*). Through the whole period of feudalism and chivalry, battle wounds were the main item of medical interest in the epics and romances of adventure and wounded knights were treated variously by comrades, squires, ladies of high degree or any other persons available.

The *chansons de geste* tell much of battle wounds, little of disease. The romances of adventure and those of the Arthurian cycle are replete with instances of sickness at court or in the open, for instance, the many ailments of Tristan or the account of leprosy in *Amis et Amiles*. But it is in the dramatic pieces, the *fabliaux*, the mysteries, miracle plays and moralities, that scholars have found the best sidelights on mediæval medicine.

Thus in *La condamnation de banquet*, a morality by Nicole de la Chesnaye, catarrh, gout, debility, asthma, lame joints, fever, dropsy, paralysis,

pleurisy, colic, jaundice, apoplexy, epilepsy, diphtheria and stone in the bladder appear on the stage as protagonists of the evil effects of over-indulgence in eating, drinking and venery, while physicians of credit and renown descant upon these disadvantages of riotous living. In a mystery called *Les miracles de Sainte Geneviève*, the wrath of God and the necessity of conversion and repentance are illustrated by the appearance of a dropsical patient, who is afflicted from head to foot with scabies, hernia, stone, unilateral paralysis, gout, haemorrhoids and halitosis. A varlet in this mystery has gout, a phthisical cough, infestation with parasites, jaundice, measles and smallpox. Both call upon God for relief:—

“Dieu, vostre aide par charité,”
 “Sire, j’ay tel deuil que je criève,
 De ce que je suis sy gouteus,
 Que des deux hanches suis boíteus,
 Et ay la tous, maise poitrine,
 Clous, pous, cirons, lentes, vermine,
 J’ay chascun jour la feinterole,
 J’ay le jaunice et suis éthique,
 Ne guérir n’en puis par phisique.”

In all these dramatic pieces, diseases are listed in profusion, but no particular attempt is made to outline their semeiology. Many, such as St. Anthony’s fire or ergotism, *le mal de Saint Jehane* or epilepsy, the mysterious *mal de Saint Fiacre*, presumably haemorrhoids, are associated with their patron saints, who had the power of healing them. In the Middle Ages, when the average expectation of life was less than half the age now accepted by actuaries, the possibility of being disabled or extinguished by disease was omnipresent in the minds of the people. Health during a life certain to be short, *n’estre malade ni mourir*, was an almost universal aspiration:

“Qui n’a rien, il ne perd rien,
 Qui n’a santé, il n’a rien,
 Qui a santé, il a tout.”

Pain, sorrow, warfare, disease and poverty are featured in harsh outlines as the common lot⁴, so much so, in fact, that at the beginning of the 16th century, the depiction of

⁴For example, the mediæval motto of *La mare au diable* of George Sand:

“À la sueur de ton visage
 Tu gagnerois ta pauvre vie:
 Après long travail et usage,
 Voici la mort qui te convie.”

ghastly diseases has become a favorite theme of oil painting and the grim skeleton of the Holbein *Danse macabre* is lord of all. Even the profanity of the period took the form of wishing diseases or an evil death upon one's enemies or haply upon oneself for some trait of stupidity. "A pox upon you" or the "Saint Anthon fire thee" of Scott's *Marion* may be matched by such expressions as "*Le mal passion le tord*" or "*Male mort le preigne et ocie*." Disease was bitter, treacherous and repulsive. Only the *mal d'amour* was sweet. Female complaints, in particular, were made light of (*Mal de femme, ce n'est rien*) and the feigning of disease by knights and ladies, to further their love affairs, was a common deception, even as beggars sought sympathy by means of artificial wounds or posed as professional cripples. The pathology of the older epics and *fabliaux* was thus a very general pathology, in which diseases were usually of undecipherable or incurable nature and of unknown or supernatural causation, curable only by miracles. The agony of intestinal obstruction or appendicitis was likened to the Passion of Christ, as *passio iliaca*, and a martyrology of the saints or a text-book on the practice of medicine was called alike a *Passionarius*.⁵

The effects of violent emotion upon the heart, the blood-vessels, the lungs, larynx, skin, nervous system and the organs of sense were depicted with a fidelity of detail which would do credit to the books of Darwin or Duchenne upon this subject. A chill was usually associated with fever and the account of the Third Crusade by Ambroise attributes cough, tonsillitis, swelling of the limbs and loosening of the teeth, to the continual rain and damp weather incident to this campaign. Scurvy was, in fact, described by Joinville and Jacques de Vitry as early as 1250. Heat-stroke, heart disease, hernia, discharges from the ears, sea-sickness, vertigo, tertian and quartan fevers, quinsy, scabies and diseases affecting the different organs of the body were all known to the old French poets and dramatists. The symptoms of leprosy, in particular, are given in great detail. As to the social status of the leper, he appears to have been treated with great sympathy and consideration. Tristan even simulates leprosy in order to have speech with Yseult. A hideous superstition to the effect that leprosy

⁵Du Cange: *Glossarium mediae et infimae latinitatis*, Niort, 1886, VI, 198.

was curable only by bathing the body of the leper in the fresh blood of a murdered child is prominent in *Amis et Amiles* and in the miracle play of the Empress of Rome. Diagnosis of disease included palpation, pulse-taking, examination of the blood and uroscopy, by which the patient's condition was often determined at a distance. Treatment was limited to cupping, venesection, purging, clysters, medicinal simples and the knife. Fevers were treated by fasting or copious draughts of wine or sweating. Massage was practiced in surgical conditions. Women were handled with care and consideration during confinement, but while the duration of pregnancy was known, a variable interval of time between the date of conception and the inception of pregnancy was assumed or presumed, to give the benefit of doubt in suspicious cases. Twins were confused with superfœtation, to the detriment of the mother's fair fame. Beatrice, in the Knight of the Swan, gives birth to septuplets, allocated to seven different fathers. There is abundant satire about quackery, bogus physicians, imaginary invalids and malingering.

In brief, a fairly complete picture of the status of medicine in mediæval France can be pieced out from the older epics, romances, *lais* and *fabliaux*. Even the comic-opera figure of the quack in the old farces (*Je suis un bon mire de Salerne*) seems a foretaste of Molière.

The spirit of delicate consideration for the wounded, as conveyed in the old romances, reveals the most pleasing aspect of chivalry:

The first indication was to get the wounded warrior in a bed, if available, otherwise he was laid upon the ground, given a stimulating wound-drink to relieve faintness, after which his wounds were examined, washed and bandaged, before transportation on shields, litters or horseback to some place of safety. Wine was sometimes poured into the wounds and may have had some crude antiseptic effect. After the introduction of fire arms, boiling oil was poured into the wound up to the time of Ambroise Pare, on the supposition that such wounds were poisoned. When there was little bleeding in punctured wounds from spears and arrows, the patient usually died of internal hemorrhage. Cupping and leeching were the only palliatives, apart from the services of a new industrial, the professional wound-sucker, who continued to ply his trade unto the end of the 18th century. The ministrations of women, as precursors of organized nursing personnel, are depicted with great charm. In dismounting from his horse, Aucassin misses his stirrup and sustains a dislocation at the shoulder. Whereupon Nicolette, by experimental manipulations at the injured joint, succeeds in reducing the luxation before making him comfortable. In the chronicles of Froissart, the historian of the Hundred Years War (1336-1453), there are

very commendable gropings toward military administration in the evacuation of the wounded, as evidenced by his constant harping on the necessity of getting them to shelter (*au logis*) and of making them comfortable by suitable dressing (*mettre à point les navrés et les blessés*). Froissart anticipates Rabelais in his jocund, expansive recital of the food supplies. He contrasts the poverty, penury and abstemious habit of the Scotch soldiers with the English concern for creature comforts, their cooking stoves, hand-mills for grinding grain and lavish commissariat; or the travelling kitchens, bakeries and portable barracks of the French, the salves, bandages and lint in the supply-trains, the old Roman ration of vinegar in lieu of wine. He gives full length descriptions of the camp at Chisay (Poitou) in 1372, the successive epidemics of jaundice (1378), of presumable typhus (1385), of presumable influenza of gastro-intestinal impact, which necessitated the raising of the siege of Lisbon (1384), the impact of heat-stroke in 1391, and the never ending epidemics of dysentery and malarial fever with which the French army was scourged. We are now at the end of the 14th Century.

The Latin medical literature of mediæval France, as listed in the *Histoire littéraire de la France* or in Haeser, need not detain us long.

It comprises the versified herbal *Macer Floridus*, commonly ascribed to Odo of Meudon (+1161), the poems of Gilles de Corbeuil (+1220), body-physician to Philip-Augustus, on *materia medica*, pulse, urine and semeiology, the *Régime du Corps* of Aldebrandino (13th Century), and in Provençal, a poetic version of the surgical practice of Roger of Parma by Raimon of Avignon (1200), an anonymous tract on dietetics in verse, a tract on the external application of brandy, and prose translations from Galen, Albucasis, Benvenuto Grassi and Roger of Parma. This remarkable proliferation of vernacular medical literature in the South of France is explicable perhaps by the reasons usually assigned for the rise of Provençal poetry and its extinction after the Albigensian massacres (1207-1215), when the troubadours were driven by unemployment into Northern Spain and Italy. The principal text on practice of medicine, the *Lilium medicinae* of Bernard de Gordon, was enormously influential in the 13th-14th centuries, but is of little positive value. Gordon taught medicine at Montpellier from 1285 to 1307, and here, by consequence of the Moslem invasions and the proximity of Moorish Spain, Arabic influences were predominant. Arabic medicine was Greek medicine diluted by filtration through the Arabic medium, but unfortunately for Arabized Greek medicine, it was saturated with Galenic dogma and imposed this dogma upon the medicine of Western Europe for centuries.

Thus the very initial directives in training the student for the practice of his profession were wrong and wrong-headed at the start, even down to the time of Sydenham. Dominated by what Osler calls "the heavy hand of the Arabian," the internal medicine of the later Middle Ages

is negligible. There is no exaggeration in the dictum of Allbutt that it had sunk into "an almost unexampled degradation" and no danger that we shall ever underestimate its value. The profusion of Latin and Provençal translations of surgical texts is an index of something more exhilarating. "War," said Hippocrates, "is the best school for the surgeon," whence surgery became a going concern for the sufficient reason that necessity was ever the mother of invention. The great surgeons of the Middle Ages were men of striking originality, forced to think for themselves and to devise their own procedures under stress of emergency. Associated with France, in this group, are Lanfranc, Mondeville and Guy de Chauliac.

Lanfranc, the founder of French surgery, came to Lyons from Milan as a pupil of Saliceto. Proceeding to Paris, he found himself excluded from the celibate roster of the university as a married man and so joined up with the College of Saint Côme, founded about 1260-71 by Jean Pitard, surgeon to Philip the Fair. The *Chirurgia magna* of Lanfranc completed in 1293 and dedicated to Philip the Fair, opposed the Arabian separation of medicine and surgery and insisted that the surgeon should know internal diseases. As with all the major surgical texts of the period, this *opus magnum* was translated into French, German, English and even Spanish. The most original of the trio was Henri de Mondeville, who lectured on anatomy at Montpellier in 1304 and during 1306-16, wrote a great unfinished surgical treatise, which has been edited, translated and analyzed in detail by many recent scholars on account of its unquestioned originality. It is prefaced by a remarkable chapter on anatomy, with thirteen miniature illustrations, which afford a sort of moving picture of mediæval procedure in dissecting. Mondeville stands out as the solitary protagonist of rational wound treatment before the time of Lister. He was a bold, hardy, aggressive spirit, who insisted on doing his own thinking, whose Norman truculence crops out everywhere in his cynical comments on the etiquette and practice of surgery in his day.

A man of gentler and more scholarly type was Guy de Chauliac, an Auvergnat, who was the best educated and most learned surgeon of his time, incidentally physician to four successive popes in residence at Avignon. When the Black Death descended upon Avignon in 1348 and 1360, Guy stood manfully by his patients, where others fled. His text-book, completed in 1363, was the accepted guide (*guidon*) to surgical practice, even in Elizabethan England. Its initial chapter is the only history of medicine of consequence between Celsus and Champier.

Glancing for a moment at Montpellier, where some leading representatives of English medicine in the Anglo-

Norman period were trained, we come to the medical humanists of the Renaissance, in particular, Rabelais and Symphorien Champier.

Rabelais was the first to lecture on medicine at Montpellier with the actual Greek text before him. While in residence there, in 1531, he was one of the actors in a medical farce or morality *La comédie de celui qui avait une épouse muette*, derived from *Maitre Pathelin* and reproduced both by Molière (*Le médecin malgré lui*) and Anatole France. The next year, Rabelais made his début in literature with his Latin version of the aphorisms of Hippocrates and the *Ars parva* of Galen, as well as the immortal *Pantagruel* (1532). More effectively than any other literary classic does this book express the extravagant joy of life, the expansive self assertion, and swagger, the footless erudition of the awakened Renaissance. Less appreciated than the *gauloiserie* is the point, established by Sainte Beuve, that *Pantagruel* is also the first brief for education as a drawing out of all the natural faculties, in opposition to the mediæval plan of stuffing the brain, like a Strassburg goose, with erudition of the kind ridiculed by the great humanist.

Symphorien Champier, of Lyons, physician to two of the Valois monarchs and a medical graduate of Pavia, was a humanist of the sober-sided erudite persuasion, a conciliator, in the terminology of the time. His Platonic Symphony (1516), attempts to conciliate the doctrine of Hippocrates, Galen, Celsus and Avicenna into a symphonic relation, visualized in the initial wood-cut representing these worthies as players in a string quartet. Champier is better known as the author of the first history of medicine after Celsus (1506), the first medical dictionary after Simone Cordo (1508) and as the biographer of Arnold of Villanova (1520) and Mesue (1523). He himself is the subject of an elaborate biography by Allut of Lyons (1859).

The first printed book to be published in France, the *Epistolæ* of Barzizius, appeared at Paris in 1470, after which date incunabula were printed in large numbers down to the end of the 15th Century, and in thirty-six towns all over France, apart from the capital. The Parisian and Lyonnaise printers of incunabula make a long list and their output of medical books gave a special incentive to the scholastic labors of the French medical humanists who came after.

The leading internist of 16th century France was Jacques Fernel, a native of Clermont (Auvergne). One of the greatest surgeons of all time was Ambroise Paré.

Fernelius began as a mathematician and indeed made the first exact measurement of a meridian of longitude. But having squandered his means on astronomy, he got down to medical practice and acquired a large fortune. The status of physician to the king was forced upon him by Henri II and he sometimes feigned illness to evade its responsibilities. Nevertheless he cured Catherine de Medici of her sterility, relieved the various complaints

of Diane de Poitiers and was most generous and kindly to the poor. His text book on medicine (1554) reveals the orderly, precise, analytic quality of the mathematical mind, contains the best classification of diseases between Galen and Felix Platter, and is remarkable for the section called *Pathologia*, the first text in which clinical findings are correlated with causation and checked by postmortems. Fernellus differentiated gonorrhœa from syphilis, made many autopsies on tuberculosis and correlated the respiratory, gastro-intestinal, paralytic, lethargic and sensory manifestations of epidemic influenza in an entirely modern spirit. His work is little known except to professional pathologists.

The first great name of European eminence in French medicine is that of Ambroise Paré. Coming up to Paris from the province of Maine, in 1529, Paré became a dresser at the Hôtel Dieu and entered the army in 1537. His life of eighty years covered the reigns of seven Valois monarchs and three Holy Roman Emperors, everything, in fact, from Flodden Field to the Armada, from Luther at Worms to the battle of Ivry. His whole career was military, and so well beloved was he among his comrades that he was even consulted by monarchs and commanding officers in regard to military operations. Before the advent of Paré, the army surgeon was merely a vassal of monarchs or great feudal over-lords and paid no attention to the common soldier. At Turin, in 1536, Paré saw an old sergeant cut the throats of three helpless wounded men, "gently and without malice," to put them out of their misery. The episode appears to have affected him profoundly and for the first time in military history, we see an army surgeon going out of his way to treat the wounded soldier, as he did at Perpignan (1543) or Boulogne (1545) or on the march through Germany (1552). Not only did he attend these patients, he worried about them, a good sign, as showing that he was beginning to think medically as well as surgically. How he worried about the boiling oil and red-hot irons applied to battle wounds until he learned to let well-enough alone, is an index of his large humanity and insight, the high point in his career. His restatement of the Hippocratic doctrine of the healing power of Nature "*Je le pansay, Dieu le guarit*" means simply that, for a long time, Nature got the patient well, if ever, while the doctor amused him, or himself, with futile remedies. Paré wrote many books, and as he wrote in the vernacular, employed a pedant or *pion* to stuff his collective works with superfluous erudition, after the fashion of his time. This book is nevertheless, the first important folio volume on medicine to be understood of the people. A bigot of the Paris Faculty tried to stop its publication, whereupon Paré proceeded to flap him with bladders, counselling *mon petit maistre* to treat more kindly *le bon vieillard*. In other words the great achievement of Paré is as nothing beside his reputation in camp and at court, as the honest impersonal soldier and man of honor. In an age in which thousands were slaughtered and heretics were tortured in flaming fire for mere quibbles about theological verbiage, he remained firm, impersonal, upstanding and essentially sweet-tempered to the end.

The Provençal surgeon, Pierre Franco was a Huguenot, driven by the Waldensian massacres into Switzerland. He was a bolder and better operator than Paré and did most to take the operations for cataract, stone and hernia out of the hands of the strolling incisors and put them upon a reliable working basis (1556-61). In 1895, Nicaise published a definitive edition of Franco, whose surgical writings had already been reprinted as late as 1881 and 1884. In this surgical group may be included the first French treatise on diseases of the eye, that of Jacques Guillemeau (1585), of which the English work, of Richard Bannister (1622), was mainly a translation, and *L'hysterotomotokie* (1580) of Francois Rousset, which records 15 successful cases of Caesarean section. Apart from the initial chapter of Paré's Surgery, the outstanding French anatomy in this period was the illustrated quarto got up by Charles Estienne, called Stephanus (1545), a medical publisher who was imprisoned for heresy and died in prison. His book contains the first account of syringomyelia. Whooping cough and rheumatism were put on the map by Guillaume de Baillou, one of the founders of epidemiology. Many new terms were added to the French language from the biological writings of the day, in particular, the books on the comparative anatomy of birds and fishes by the physicians Pierre Belon and Guillaume Rondelet. The botanical treatise of Jean de la Ruelle (1536) gives the French popular names of each plant, which Ruellius acquired by questioning the peasants and mountaineers on his excursions. The first medical dictionaries after Symphorien Champier (1508), were those of Henri Estienne and Jean de Gorris, both published in the year 1564. They were important as fixing definitions for many anatomical terms and have thus had a decisive influence on modern anatomy.

Medicine was naturally reflected in the secular literature of the Renaissance, notably in Ronsard's poetic description of insomnia and Montaigne's account of medical matters, including his own ailments, in his Journey into Italy.

Montaigne's Essays deal with such matters as divination, cannibalism, sleep, that our emotions run away with us, smells, drunkenness, against malingering, of a monstrous child, the resemblance of children to their parents, cripples and physiognomy. On the whole, the most readable medical document of the period is the *Apologia et voyages* of Paré.

In the 17th century, in consequence of Harvey's demonstration of the circulation of the blood, anatomists made many discoveries of physiological significance and laboratory experimentation became a word of ambition. Laboratory medicine went up. Internal medicine and surgery went down. Diagnosis was based upon futile figments of the mind and the tyranny of words, the bizarre terminology ridiculed by Voltaire. Therapeutics sank to a level of in-

efficiency not much better than that of primitive savages. The London Pharmacopœia was loaded with lengthy rumble bumble and the exploitation of filth as remedies. The worthwhile surgeons of the 17th century can be counted on the five fingers of one hand. The only French internist of consequence was Charles Barbeirac of Montpellier, who is said to have imparted his clinical method to Sydenham. The Parisian internists were the sterile pedants ridiculed by Guy Patin and Molière.

Apart from experimental science, with which even the great philosophers of the period, Bacon, Descartes, Spinoza, Locke, were concerned, the 17th century was remarkable for the origination and growth of scientific societies all over Europe, with their transactions as a means of spreading knowledge more rapidly. It was also the age of newspapers and of medical periodicals.

The first French newspaper, the *Gazette de France*, which appeared in Paris on May 30, 1631, was edited by a physician, Théophraste Renaudot who was also the originator of pawn-shops and intelligence offices. The first scientific periodical was the *Journal des Scavans*, begun in Paris on January 5, 1665, in which year the Academie des sciences was founded. The first medical periodical to be printed in the vernacular was the *Nouvelles découvertes sur toutes les parties de la médecine*, edited by the surgeon, Nicolas de Blegny at Paris in 1679-81, subsequently translated into German, even into Latin, and continued in Latin as the *Zodiacus medico-gallicus* by Théophile Bonet at Geneva in 1680-85. It was succeeded by the *Journal de médecine* (1681-85), edited by the Abbé de la Roque and continued by Claude Brunet, who also edited a monthly *Progrès de la médecine* (1695-1709). The French original of the *Nouvelles découvertes* was suppressed in 1682 on account of its flippant handling of contemporary physicians, which impelled de Blegny to issue a volume of satirical sketches, the *Mercure savant* (Amsterdam, 1684). It is said that this manœuvre, combined with the list of addresses of Parisian physicians at Renaudot's intelligence office, engendered the first city directory, the *Almanac des adresses de Paris*.

The century of Richelieu, Mazarin and Louis XIV was one in which public spirit was utterly crushed out by the tyranny of absolutism and the heavy taxation incident to long, expensive and meaningless wars. When the *Grand Monarque* abolished the ancient office of Mayor of the palace, the joyous, expansive life of the Renaissance had given place to a ponderous stilted formality of costume,

behavior and etiquette, taken over from Spain, and this was not without its effect upon the medical profession. For half a century before the advent of Molière, physicians and surgeons alike were ridiculed as sterile, pedantic coxcombs, who affected the austere scarlet of the clergy or the red heels of the aristocracy and made a vain parade of their Latin, to discourse learnedly about diseases of which they knew little or nothing. The three-cornered squabbles of physicians, surgeons and barbers, the decline of the universities, the rise of scientific academies and periodicals, all these things had to do with the eventual rise of French surgery in the 18th century. The leading names of French medicine in the 17th century were the anatomists Dionis, Vieussens and Duverney, the medical botanist Tournefort, the obstetricians Mauriceau, Portal and Louise Bourgeois, first of the literary midwives, who attended Marie de Medici through her six confinements, and the surgeon Dionis.

Duverney wrote the first text book of otology. Mauriceau developed the accepted canon of obstetrics. Du Laurens maintained the communicability of scrofula (1609). The veterinarian Solleysel demonstrated the transmission of glanders from horse to horse (1664). Lead poisoning was described by Citois as Poitou colic (1616). Vieussens, Portal and Barbeirac were associated with Montpellier. Daniel Leclerc, author of the first large book on history of medicine (1696), was a native of Geneva. Literary interest attaches to the history of King's Evil by André du Laurens (1609), the whimsical gynæcology of Augustin Corrade (1634) called *L'hydre féminin* and the *Callipædia* of the Abbé Claude Quillet (1656), a poem on the art of begetting beautiful children, which seems, at this time of day, a burlesque approach to eugenics. The satirical onslaughts upon the medical profession by Molière, Le Sage and Guy Patin are too well known to need particular comment. Molière as we have seen, had a long foreground⁶. The intermezzo-ballet in the *Malade imaginaire* of Molière, a burlesque of the ritual of graduation from the Paris Medical Faculty, is the choicest bit of medico-historical satire ever penned by a man of genius.

Lexicography was forward in this century. The great epidemiologist Baillou made a glossary of Hippocratic terms (1639), Gabriel Naudé of the Apologie made another essay in this kind (1647) and etymological lexicons were published by Thevenin (1669), and Callard de la Ducquerie (1673).

⁶The graduating dissertation of George T. Moody (Johns Hopkins University, 1932) demonstrates that Molière was the culmination of a steady run of literary satire on physicians during the first half of the 17th Century.

Overtopping all these stand the great names of Descartes and Pascal. The analytical geometry of Descartes (1637) gave to medical and biological investigation a new weapon of precision, the plotting of curves by the coordination of points in space. Pascal rendered equal service through the creation of descriptive geometry and the mathematical theory of probabilities. The starting point of modern experimental or physiological psychology is the treatise *Des passions de l'âme* of Descartes (1649), which antedated the *Ethics* of Spinoza. Descartes wrote the first formal treatise on physiology (*De homine*, 1662), the intention of which is quite modern in that, as Stensen observed, it does not pretend to expound the actual human body but "a machine capable of performing all its functions." It contains the first correct account of reflex action. Descartes also showed that accommodation in vision is due to changes in the form of the lens (1637). Mariotte discovered the blind spot in the retina (1668). Finally, the *Discours de la methode* of Descartes (1637) expounds, with utmost brevity and simplicity, the four successive steps in the conduct of a scientific investigation, to which no physician of the 17th century paid the slightest attention in attempting to diagnose internal disease:

1. Admit only what is clearly self-evident; in other words, clear your mind of all preconceived notions, obscure theories and footless hypotheses.
2. Analyze all available data with punctilious exactitude.
3. Proceed from the known to the unknown by coordinating said data into a synthetic whole.
4. Revise your findings by a clean sweep of the whole matter and of any unconsidered details. Here we have French intelligence at its best.

Hypnotism, autosuggestion and psychotherapy were well-known in the 16th century⁷ and the effects of the mind upon the body became prominent in the subsequent quest of physiologists for the seat of the soul. Descartes located it in the pineal gland, Van Helmont in the pit of the stomach, and Stahl regarded psychic disturbances as the efficient cause of disease. The association of Pascal with

⁷See, Camille Rouzeaud, Paris dissertation No. 4, 1918, who calls this period *le siècle de l'hypnotisme*.

Port Royal, following the collision over the gulf which was the turning point in his career, suggests the many clergymen of the period who practiced psychotherapy by functioning as directors of the female conscience. The *Historiettes* of Tallement des Réaux (1657) the letters of Mme. de Sevigné (1673-97), and the Mémoires of Saint Simon (1734-46) abound in clinical data, some of this species, and all suggestive of the sterility of internal medicine throughout the century.

In the 18th century, the centre of surgical teaching and practice was Paris, to which even Frederick the Great sent junior medical officers for training. The successive steps in this development were three, viz:

The surgeon Felix, having repaired the fistula in ano of Lewis XIV, was ennobled by the king, who created for his successor Mareschal five surgical chairs in the Collège de Saint Côme (1724). Enraged, the Paris Medical Faculty bombarded the doors of Saint Côme in bitter cold weather, but were driven away by the angered populace, who had lost all respect for their furs and costly red robes. Next came the foundation of the Académie de Chirurgie by Mareschal and La Peyronie of Montpellier and its first meeting on December 18, 1731. Finally, at the instance of La Peyronie, Louis XV, in a decree of 1743, freed the surgeons from the barbers by forbidding the latter to practice, since no one could be master of surgery henceforth without the degree of master of arts.

This was the French surgeon's Declaration of Independence, guaranteed by a firm footing of preliminary training and scientific instruction and comparable only with what John Hunter did for the *locus standi* of the English surgeon as Surgeon General of the British Army. The French surgeon, from Dionis to Desault, was now to be a well educated, self-respecting man, fitted to write upon his subject with precision and concision. Laplace even proposed that medical men be admitted to the Academy of Sciences, "so that they could associate with scientific men" (*afin qu'ils se trouvent avec des savants*). The surgical literature of the period is extensive and its importance may be estimated by referring to a few high spots.

The surgical treatise of Dionis (1707), was translated even into Chinese. In 1710, Dominique Anel of Toulouse repeated the operation for aneurysm by a single ligature long before John Hunter took it up. In 1712, Anel

introduced his operation for lachrymal fistula, which preluded the remarkable work of the Norman, Daviel, who became eye surgeon to Louis XV in 1749. In 1752, Daviel started modern ophthalmic surgery by one hundred successful operations for cataract by extraction of the crystalline lens, to which he even added iridectomy. By 1756, he reported four hundred and thirty-four extractions, with only fifty failures, which standardized the procedure in surgical practice. In 1736, Jean Louis Petit opened the mastoid process for the first time. Orthopedic surgery was founded by Nicolas Andry (1741) and Venel of Geneva (1780). Desault founded the *Journal de chirurgie* (1791-2), improved the treatment of fractures and aneurysms and imparted to his pupil Larrey the principle of treating gunshot wounds by *débridement* (excision) with primary suture (1790), which became so prominent on the Western Front over a hundred years later. David, a Norman of Rouen, described spinal deformity from caries, contemporaneously with Pott (1779). Mestivier operated successfully for an appendicitis caused by a pin in 1759. Moreau introduced excision of the elbow during 1786-94 and Chopart his amputation of the foot in 1792. Apart from these war surgeons of the Revolution, there was a remarkable group of neurologic surgeons, of whom Saucerotte and Méhée de la Touche first described acromegaly in detail (1772-73), Pourfour du Petit (1710) and Saucerotte (1769) established the doctrine of contralateral innervation and Pourfour du Petit developed what little was known of the sympathetic-autonomic system (1723). Work on contrecoup and head injuries was activated by the Académie de Chirurgie itself (1760).

The 18th century was remarkable for a swarm of descriptions of new diseases, in which regard it was only to be surpassed by the clinical output of the 19th.

The first formal treatises on heart disease, those of Vieussens (1715) and Senac (1749) established the basic data about pericarditis and many of the valvular lesions, and preluded the subsequent achievement of Corvisart, Laennec and Bouillaud. Thierry described pellagra in 1755, Nicolas André infraorbital neuralgia in the same year, Lorry melancholia in 1765, Fodéré goitre in 1792. Here was already considerable improvement upon the sterile ineptitudes of the 17th century, a tendency to deal with facts as facts, which was to come into its own when Paris became the Mecca for instruction in clinical medicine during the Napoleonic period and long after. Anatomical research was of the most varied kind. The text book of the Dane, Winslow (Paris, 1731), established many details concerning the origin and insertion of the muscles and their nomenclature, and these became permanent in the literature. The sportsmanlike tendency of the surgeon-anatomists of the period, with reference to elaborate illustrations at their own expense, is evidenced in the atlases of Lieutaud (1742). Didactic illustration in oil painting was done for the first time and on a grand scale by Gautier d'Agoty (1759). The Paduan tradition of comparative anatomy was revived by Vicq d'Azyr (1773).

The crowning achievement of France in physiology was the work of Lavoisier and his associates on breathing (1775-91). The work of Réaumur on regeneration in animals, on digestion in birds and on thermometry was also of basic importance. In 1775, Théophile de Bordeu, in his *Analyse médicale du sang*, adumbrated the correlation of the internal secretions of the ductless glands for the first time.

The first classic on dentistry, *Le chirurgien dentiste* of Pierre Fauchard, was published in 1728. The second edition (1746) contains his original account of pyorrhœa alveolaris and the use of orthodontal procedure in malocclusion.

The first great psychiatrist of France, the apostle, in fact, of sane and humane treatment of the insane, was Philippe Pinel, who, with the consent of the National Assembly, made an epoch on May 24, 1798, by striking off the chains from 49 insane patients at Bicêtre, an event commemorated in the well-known painting of Tony Robert Fleury. In the 18th century, insanity was not regarded as a mental disorder, like a disease of the brain, but as a mysterious incurable affliction, usually the result of sin, hence a disgrace rather than a misfortune to the individual and his family. Excitable patients were chained and an asylum was a cross between a prison and a poor-house. Pinel's work, including his clear separation of mania, melancholia and dementia, is the starting point of the scientific treatment of the insane as sick patients in hospital.

Thus in the 18th century, there was everywhere a remarkable versatility in medical achievement. More and better work was done than formerly, due, perhaps, to the fact that the period before the Revolution was relatively quiescent. After thirty years of warfare between two bankruptcies, the foreign policy of France under Louis XV and his minister Fleury was to cultivate masterly inactivity, lie doggo and let the other fellow do the fighting, until Pompadour involved France in the Seven Years' War with Frederick the Great. As with Spain in the same period, the consequence of this *faire la guerre* policy was the loss of all the colonies and the dominance of the Anglo-Saxon in North America. Contributions to medicine were made even by laymen in this period.

Conflict with received opinion rather than humanitarian interest in the blind caused Diderot to be thrown into prison at Vincennes after the publication of his *Lettres sur les aveugles* (1749) which was suppressed. In those days, the blind, the deaf, the halt and the lame were regarded as objects of derision. Disgust at a burlesque public concert by the blind led the mineralogist Haüy to found a national Institute for them in 1786 and

to print books for them with raised characters. His *Essai* of 1786 was the point of departure of all modern endeavors. In like manner, the Abbé de l'Épée founded a school for deaf mutes in Paris (1755) and left an unfinished dictionary of deaf and dumb signs, completed after his death by his successor, the Abbé Sicard. Diderot wrote for the *Encyclopédie* (1752-72), over which he labored for over two decades, 18 articles on medicine, 10 on botany and 10 on natural history. Voltaire contributed to his *Dictionnaire philosophique* (1764) some 30 articles of medical or medico-historical interest. The *Émile* of Rousseau (1762) albeit condemned by the French and the Swiss governments, was not without its effect upon the basic idea of infant welfare. From Fontenelle's *Dialogues des morts* (1683) to the time of that arch *mauvais sujet* of medicine, La Mettrie, there was a continual run of satire on physicians and their ways. La Mettrie, a most industrious polyhistorian, made a translation of the works of Boerhaave, now forgotten. His satirical *Politique du médecin* (1746) was condemned and publicly burned by order of the Parliament of Paris. He followed it up with two medical comedies, *La Faculté vengée* (1747), *Les charlatans démasqués* (1762), and a satire on the leading physicians of Europe, *Ouvrage de Penelope ou le Machiavel en médecine* (1748), to which he had the impudence to add a supplement, with key (Berlin, 1750). He attained the extreme limit of crass materialism in *L'homme machine* (1748) dedicated ironically to Haller, *L'art de jouir* (1751) and *Vénus métaphysique* (1752), which, like Diderot's *Le rêve de d'Alembert* (1769), reflect the dissolute spirit of the Regency and the dissolving social forces implicit in the Revolution.

Apart from the light-footed irony of Fontenelle and Molière, clowning about medicine, is as a rule, deadly in its dullness, for the sufficient reason that, whatever the antics of doctors, medicine, as dealing with disease, injury and death, is not, in itself, a funny subject⁸.

The Revolution and the Napoleonic Wars meant not only the break up of the social order, but also a release of energies at the time unpredictable. A chronologic arrangement of French literature, from the *Atala* of Chateaubriand (1801) to the end of the century, each year dating a classic, illustrates this *carrière ouvert aux talents*, just as the literature of the 20th century, illustrates, year by year, the gradual decadence and decomposition of the old order of

⁸The *ne plus ultra* of clowning is perhaps attained in the colored illustrations of the recent reprint of Littré's *Hippocrates*, with introduction by Prof. Henri Roger (1932). The attendant *midinettes*, who officiate as nursing personnel to the grim sage of Cos, have just stepped out of *La vie parisienne*.

things before the World War. A chronology of French medical achievement, corresponding with these entries from 1801 to 1932, is so extensive and complex that to attempt to give any account of it would be bewildering. One can only indicate the broad general outlines and trends of development. While Chateaubriand is publishing *Atala* (1801) and the *Génie du Christianisme* (1803), Pinel issues his classic on insanity, Bichat starts an epoch with his books on the descriptive anatomy of the tissues and membranes, Dupuytren founds the Société anatomique de Paris, the Bulletin of which has to this day remained the repository of French pathology. From this time on until the middle of the 19th century, Paris remains the world center of medical teaching. The clinical medicine of the future is made in the Paris Faculty, holding its own, along with the surgical tradition of the 18th century, until the Franco-Prussian War and well beyond it. The changes apparent through the different decades are these. During the romantic literary period, which dates back to the *Paul et Virginie* of Saint Pierre (1798), the period of Mme. de Stael, Benjamin Constant, Lamartine and Alfred de Vigny, the leaders of French medicine are Corvisart, Bretonneau of Tours, the two Breton clinicians, Laennec and Broussais, who with Louis, Andral, Chomel, Piorry, Bouillaud are to be the teachers of many outstanding physicians of England and our own Eastern cities. Along with these Bichat, the physiologists Flourens and Magendie, Napoleon's army surgeon Larrey, Dupuytren, Boyer, Lisfranc and Nélaton. The July Revolution of 1830 ends the Romantic movement. Spengler signalizes the appearance of *Le Rouge et le Noir* of Stendhal, in 1830, as a turning point in European literature, although Stendhal shrewdly observed: "I shall be appreciated toward the year 1900." Be that as it may, the mild, sentimental species of romantics give place to more picturesque and self assertive types, such as Dumàs père, Victor Hugo, Gautier, Banville, Musset and Balzac; but while Broussais is still going strong, albeit to empty benches, Laennec gives place to Trousseau, the tyrannic Dupuytren

to Nélaton and Malgaigne, and there is no particular change until the middle of the century, when Trousseau becomes clinical overlord of the Hôtel Dieu and Pasteur and Claude Bernard begin the new epoch of experimental medicine. In 1839, when de Tocqueville is finishing his *Democracy*, Stendhal publishing *La Chartreuse de Parme* and Mérimée just beginning *Colomba*, Bouillaud is working on rheumatic affections of the heart, Cruveilhier on his great atlas of pathology, Cuvier on his *Animal Kingdom*, Gavarret on medical statistics and Poiseuille on another new departure, the viscosity of the blood. Through the late forties and the fifties, Claude Bernard and Brown Séquard are experimenting on the foundations of endocrinology, Duchenne is founding a peerless neurological tradition, which is to last unto the team-work of the Salpêtrière group during the World War, long after the great clinical tradition of Laennec and Louis had died out. Pasteur and Claude Bernard dominate the scene to the end of their lives. In 1857, when Flaubert publishes *Mme. Bovary* and Baudelaire, *Les Fleurs du Mal*, Bernard has demonstrated the glycogenic function of the liver and Pasteur his views on fermentation. In 1862, Victor Hugo publishes *Les Misérables* and Flaubert *Salammbô*, while Charcot takes charge of the Salpêtrière, Paul Broca demonstrates motor aphasia, Koeberlé performs ovariectomy in Strassburg, Pasteur works on spontaneous generation, Daremberg, Chéreau, Menière, Raynaud are very active in the history of medicine and Littré prepares the first volume of his *Dictionary of the French language*, completed in 1872. In 1871, Zola begins the *Rougon-Macquart* series, and now we have a new school of writers, the Goncourts, Barbey d'Aurevilly, Villiers de l'Isle Adam, Rimbaud, Paul Verlaine, Maupassant, Bourget, Henri Becque, Loti, tending toward the ultra-realistic or the fantastic. To the end, Charcot is the exotic dominating figure. The clinical output is mainly neurological. Laveran discovers the parasite of malarial fever, Fournier's clinic has become a world center for venereal diseases, Pasteur has become a virtual physician through

his preventive inoculations against anthrax and hydrophobia and the medico-historical tradition is still active in spots. Toward the end of the century, Zola publishes *La Débâcle* (1895), and we have Curel, Bergson, Barrés, Rostand, Brioux, André Gide, Jules Romains, Anatole France, who hold their own through the relative mediocrity of the 20th century. On the eve of the War, Proust publishes *Du côté de chez Schwann* (1913), signalizing a new trend. French neurology retains its splendor through the war, two able physiologists are prominent, Gley and Charles Richer, author of *L'homme stupide*, and during the war period, the surgeons Tuffier, Morestin, Leriche, Lecène and Carrel.

Stendhal said: "To be a good philosopher, one must be clear, dry, without illusion. A successful banker has part of the equipment necessary to make discoveries in philosophy, namely to see things exactly as they are." In other words, the dry, factual, impersonal manner of an official or military report, which Stendhal imported into the writing of imaginative fiction, was the norm to which scientific and medical literature had been tending for centuries, even as consecutive thought among prehistoric and primitive savages had to wait upon the development of speech and the organization of language. Where La Rochefoucauld, Vauvenargues, Chamfort or Joubert could say more in a single sentence than whole stodgy volumes of duller men, so were the older medical writers apt to be "inebriated by the exuberance of their own verbosity," to the extent of being unreadable. Even Bichat, whose inspiring effect upon his generation has been eloquently commemorated by George Eliot in *Middlemarch*, was too diffuse, in consequence of his furious ardor to accomplish all he could in the face of approaching death. Laennec, the impetuous, ebullient Breton, who lectured in Latin on occasion for the benefit of foreign students, was sometimes intemperate and unjust in denouncing the opponents of the stethoscope (mediate auscultation), but could write with beautiful precision. He likened his bitter Breton rival, Broussais, to Paracelsus, on account of his inarticu-

late gropings toward a true theory of disease. Laennec has been characterized by Mauriac as nearer to Pascal or Pasteur than to Descartes or Claude Bernard:

"I attach no importance to this observation, which may be erroneous. It seemed to be as I have recorded it, but a phenomenon of this kind is not evident enough to be registered as an accurate statement of fact."

"The observer should be scrupulous in his assertions. A single error in the physical sciences can drive many into a blind alley, to be corrected later by years and volumes of research only."

Laennec regarded hypotheses as

"the mere scaffolding of science, to be utilized as an algebraic x ", but not as a Procrustean bed, and constantly warns his pupils to be on their guard against "the errors which constantly arise from the observer's inexperience, from the day to day inequalities of his aptitude, the illusions of his senses and the difficulties inherent in the method of observation he employs."

Claude Bernard, on the other hand, was like Littré, a follower of Auguste Comte. The same cold positivism which makes the poems of Littré seem like the traceries of hoar-frost led Bernard into the colossal error of his career, his denial of the role of microorganisms in fermentation. At the same time, Bernard's positivism engendered such terse and luminous aperceptions as these:

"Observation is a passive science, experimentation an active science."

"A discovery is an unforeseen relation not confirmed in theory, for otherwise it would have been foreseen."

"In science, the thing is to modify and change our ideas as real knowledge advances."

"True science teaches us to doubt and, in ignorance, to refrain."

Charcot has the right clinical approach when he says that:

"In the last analysis we see only what we are prepared to see, what we have been taught to see," when he inquires "how it is that one fine morning Duchenne discovered a disease that probably existed in the time of Hippocrates" and goes on to explain that new facts always leave us cold, "because our minds have to take in something which deranges the original order of our ideas, but we are all of us like that in this miserable world."

Of modern medical literature of a readable character one might recommend in brief:

The Mémoires de médecine militaire (1812) of Larrey, the Correspondence of Bretonneau with his pupils Velpeau and Trousseau, edited by Paul Triaire, Trousseau's own *Clinique médicale de l'Hôtel Dieu*, Claude Bernard's *Introduction à la médecine expérimentale*, Charcot's *Leçons du Mardi*, the contributions on medical art in the *Nouvelle Iconographie de la Salpêtrière*, the witty biographical sketches in *Nos grands médecins* by Horace Bianchon, otherwise Maurice de Fleury, *L'homme stupide* ("Idiot Man") by that original physiologist, Charles Richet and the acute criticisms of modern medicine by Pierre Mauriac in *Aux confins de la médecine* (1926) and *Nouvelles rencontres* (1930).

Scores of cultivated French physicians have written *vers de société*, but the serious poetic output of medical men, as evidenced by *Le Parnasse médical français* (1874) of Chéreau, is mediocre⁹. A solitary exception would be Henri Cazalis (1840-1909), who was called *l'Hindou du Parnasse contemporain*, on account of his predilection for Oriental themes and resembles Leconte de Lisle in his pessimistic tendency (*Livre du néant, Melancolia*). He translated the Song of Songs and the quatrains of al-Gazali. The number of recent novels and plays about medicine and by medical men is legion. I know of only two French medical plays of consequence: *L'épidémie* of Octave Mirbeau and Jules Romains' *Knock*, and, in both, the satire is transferred from the doctor to the patient and the public. André Couvreur, a graduate of the Paris Medical Faculty, has published a long row of medical novels, the most amusing of which is *Caresco le surhomme*, a satire on the gynecologist Pozzi and the outworn mania for cutting out women's ovaries by the thousand.

With the publication of Littré's bilingual Hippocrates (1839-61) and of Malgaigne's three volume edition of Paré (1840), there began a steady outflow of serious investigation in the history of medicine, which continued through the seventies, with a second upthrust in the nineties.

Malgaigne, who, with Pétrequin, was the contemporary authority on Hippocratic surgery, was defined by Billings, as "the greatest surgical historian and critic who ever lived." The *Catalogue des sciences médicales*

⁹The best poem in the collection is the spiritual copy of verses by Philippe Ricord on the immortality of the soul.

of the Bibliothèque impériale is an historical subject-index of items taken mainly, it is said, from the library of Littré himself. An author-index would be invaluable. Daremberg edited Rufus of Ephesus on the pulse (1848), a bilingual of Oribasius (1851-76), the Four Masters (1854), Celsus (1859), vernacular anthologies of Galen (1854-6) and Hippocrates (1855), wrote on Homeric medicine (1865), Hindu medicine (1867) and medicine in Greek literature (1869), culminating his labors with his two volume history of medicine (1870), which held the field for a long time. Prosper Menière wrote learnedly on medicine in the Latin poets (1858), medicine in Cicero (1862) and the consultations of Mme. de Sévigné (1864). Maurice Raynaud's book on medicine in the time of Molière (1862) passed through two editions. Achille Chéreau, tyrannical Librarian of the Paris Medical Faculty, was its historian (1878), as also of French medical journalism (1867), the plague in Paris (1873), the guillotine (1873) and the six confinements of Catherine of Medici (1875), also the biographer of Coitier (1861), Mondeville (1862), Renaudot (1878) and Servetus (1879). He buried an enormous amount of valuable research as "Ephémérides médicales" in the columns of *l'Union médicale* (1866-76).

In the later period, Paul Dorveaux, librarian of the École supérieure de pharmacie of the University of Paris, made a valuable catalogue of French dissertations on pharmacy (1891-95), translated the *Antidotarium* of Nicolaus of Salerno (1896) and the *Circa instans* of Platearius (1913), also edited the *Myrouel des apothicaires et pharmacopoles* of Symphorien Champier (1894) and the rhymed *Promptuaire* or herbal of Thibault Lespleigne (1899). The medical zoologist Raphael Blanchard made a new departure in his *Épigraphie médicale* (1909-15). Jeanselme, dermatologist and syphilographer and prominent in the investigation of tropical diseases, has concentrated on Byzantine medicine and Menétrier, professor of history of medicine in the Paris Medical Faculty since 1919, has followed up French medicine, to which the *Bulletin de la Société d'histoire de la médecine* (1902-32) is mainly devoted. Wickersheimer, librarian of the University of Strassburg, resembles Chéreau in his close and accurate investigation of minutiae of all kinds. His major productions are his graduating dissertation, an unrivalled history of French medicine in the Renaissance period (1905), his catalogue of French medical periodicals from 1679 to 1856 (1908), his edition of the *Anatomie* (1345) of Guido de Vigevano (1913), his history of the Paris Medical Faculty, as conveyed in the Commentaries of 1395-1516 (1914), and his two volume catalogues of the Libraries of the Academy of Medicine (1919) and of the University of Strassburg (1922). Augustin Cabanés, author of a superb history of military medicine (*Chirurgiens et blessés*, 1918), was inclined to frivol and thus frittered away a good deal of time and labor on the trivial anecdotage and "indiscretions of history." But he was the best informed of all medical historians in these details, and some of his researches, such as *Mœurs intimes du passé* (8 vols.), *Grands neuropathes*, *Les évadés de la médecine*, are readable. René Semelaigne, in *Aliénistes et philanthropes* (1912) and *Les pioniers de la*

français (1932-3) has produced a record comparable with Kirchhoff's *Deutsche Irrenärzte*. *Les malades de l'esprit et leurs médecins* (1930) by M. Laignel Lavastine and Jean Vinchon is another recent essay in this kind.

French medical lexicography was extremely specialized in the 18th century. A lexicon of Latin and French terms by Elie Col de Villars (1741) was accompanied by a long series of terminologies of anatomy (Peras, 1753; Tarin, 1753; Dufieu, 1766; Vicq d'Azyr, 1786); surgery (Levacher de la Feutrie, 1767; Antoine Louis, 1772; François, 1773); drugs (Nicholas Lemery, 1714; Juliot, 1758); prognosis (Tennetar, 1770), and semeiology (Tennetar, 1777). The medical dictionary of Nysten (1810) was revised in its tenth edition (1855) by Littré and Robin and attained its 21st edition in 1905. The *Larousse médicale illustré* of Galtier-Boissière appeared in 1912 and a war supplement of military medical terms in 1917. An eleven-volume dictionary of physiology published by Charles Richet in 1894-1925 is, in reality, an encyclopaedia. The great monument in this kind was the 100 volume *Dictionnaire encyclopédique des sciences médicales* (1864-1900) of Amédée Dechambre which is still a useful repository of medical biography. The most exhaustive and accurate bibliographies of the great physicians of the past are to be found in the *Biographie médicale* of A. - J. - L. Jourdain, published in Paris (1820-25) by Panckoucke and known among doctors as "Pan-cake".

The most salient trait of French medicine, by and large, would appear to be the extraordinary versatility of the many physicians who have taken up scientific, literary and artistic pursuits as hobbies, and, by the same token, the tendency of such men to drop one scientific problem for another, with no apparent regard for the potentialities of a worthwhile theme. In this group would naturally fall the physicians listed by Cabanés as *les évadés de la médecine*, doctors who have abandoned medicine for some other calling. In science, the versatile men, the explorers of untried fields were classed by Ostwald as Romanticists, those who never turn out a finished product, but leave behind them many loose ends for others to follow up and complete. One cannot blame Petit or Mestivier, for instance, if they did not repeat their risky operations on the mastoid (1736) or the appendix (1759), nor Baillarger if his clear perception of manic-depressive insanity as *folie à double forme* (1853-4) had to wait half a century for the conclusive synthesis of Kraepelin. But what of Dutrochet who made a clear statement of the cell theory (1824), fourteen years before Schleiden and Schwann (1838-9) and of

osmosis (1827-35) at least nineteen years before Graham (1854)? An examination of the vast output of this gifted investigator reveals the fact that, during the years of his scientific activity, Dutrochet was constantly switching from one important line of investigation to another and so failed to duplicate the advance he had made in osmosis or even to demonstrate his reasoning about the cell doctrine, which was more accurate, in its time, than that of either Schleiden or Schwann.¹⁰ The great men of science in any country, however, are those who, like Paré or Laennec or Pasteur or Bernard, have displayed good generalship in developing a line of thought to its ultimate consequences.

F. H. GARRISON



¹⁰See, on this head, A. R. Rich: Bull. Johns Hopkins Hospital, Baltimore, 1926, XXXIX, 330-365, and J. Florian: Nature, London, 1932, CXXX, 634.

SYMPOSIUM: RECENT STUDIES ON THE EFFECTS OF
TOBACCO IN MAN

RECENT IMMUNOLOGIC EXPERIMENTS IN
TOBACCO HYPERSENSITIVITY*
(ABSTRACT)

MARION B. SULZBERGER

My teachers, here and abroad, my readings, experiments and observations have imbued me with the firm conviction that we are but at the beginning of the era of the practical use and value of the skin test. And I seem to find, on all sides, possibilities for its further application.

Roughly a year and a half ago, I had the opportunity of discussing a case of beginning thromboangiitis obliterans with an eminent specialist in that disease. As chance would have it, I had already found the patient excessively skin-hypersensitive by means of patch tests with both butesin and picric acid. It was, therefore, almost inevitable that it should occur to me that thromboangiitis cases should be skin-tested with tobacco, as well as with other allergens. Isolated cases of tobacco hypersensitivity of different types have been known for some time. Since the case reported by Stauffer in 1930—a case which I had the opportunity of studying together with the author in Aarau, outside of Zürich—I have been engaged in skin-testing with tobacco and nicotine solutions. In view of all this and the well-known theory of the clinical role of tobacco in thromboangiitis, it was natural for me to make the suggestion that these cases should be skin-tested with tobacco. The method of experimental procedure was then arranged and agreed upon, and this has led me to the recent studies in tobacco allergy.

*Delivered before a Stated Meeting of the Academy, February 2, 1933. Some of the experiments mentioned herein were carried out at Montefiore Hospital; and some, through the courtesy of Dr. Halsey, were performed at the Department of Dermatology of the Post Graduate Hospital (Director, Dr. George Miller MacKee).

It surely does not require a lengthy argument to convince an audience that if tobacco is an active allergen, it must be a most important one. There is probably no other plant which is so omnipresent on the face of the earth, for where it is not grown, it is imported. In civilized communities, contacts with this allergen are unavoidable. It pervades our clothes. Our pockets are full of its dust. Our homes, our clubs, our public meeting places and our conveyances are constantly being filled and refilled with tobacco smoke and tobacco dust. And, in addition to this, the actual users of tobacco enter into the most intimate contact with the allergen. Tobacco is snuffed and chewed. It is smoked; and, in some parts of the world, even eaten and drunk (notably by certain tribes in South America).

In the United States alone, in the year 1932, it is estimated that the value of the tobacco consumed exceeded \$1,350,000,000.—Due to its tobacco industry, the city of Winston-Salem paid higher Federal taxes in that year than any city in the United States, with the one exception of New York. These figures illustrate how tremendous a quantity of tobacco allergen is being distributed and consumed.

When we take all this into consideration, together with the fact that the tobacco allergen—in the few investigations thus far reported—seems to show a marked predilection for sensitizing the vascular system, we arrive at a comprehension of the almost incalculable possibilities which must impel us to the intensive study of this whole question.

It is obvious that when we have proven that the vascular system is involved in reactions of hypersensitivity to a circulating allergen, the number of diseases which must be studied from this new angle is far greater than we should, at first, suppose possible. For reactions of hypersensitivity in the blood vessels in response to circulating allergens may be productive of end-results of two distinct types: 1) changes in the blood vessels themselves; and

2) changes, based upon irregularities in the distribution of blood, in the organs which they supply.

In the first group we must naturally include all types of thrombotic, spasmodic and inflammatory responses in the vascular system. Not only thromboangiitis, but coronary sclerosis and atherosclerosis, angina pectoris and migraine must be envisaged from this viewpoint and must, therefore, be skin-tested. I do not consider it necessary to lengthen this list here.

And of the second group, I shall mention only such divergent conditions as peptic ulcer, optic neuritis, iritis and the acro-asphyxias.

Far-reaching as may be the effects of tobacco as an allergen and multitudinous as the diseases of specific tobacco sensitization may prove to be, I believe that the *underlying immunologic conceptions here involved are of even greater importance.*

It is for this reason that I wish to recapitulate the basic principles underlying the recent hypothesis of thromboangiitis being a localized specific vascular hypersensitivity to a circulating allergen; and that this hypersensitivity is demonstrable by skin-tests. You will permit me to repeat—when necessary in the course of this review—many things already expressed in some of my previous publications.

The question of tobacco hypersensitivity and the important diseases it may cause gives me a welcome opportunity for calling attention to immunologic conceptions studied and stressed in connection with other allergens and other diseases. Some of these conceptions belong to general immunology, while others are more particularly to be studied in *skin* diseases due to hypersensitivity.

The first concept is that of *localized and circumscribed fixed specific hypersensitivity.* I believe that although phenomena of this type exist in every form of allergy and in every organ, they are best observed in the skin and are most clearly evident to the immunologically trained dermatologist.

For example, I first studied this manifestation in mycotic eruptions. In these—as is now well-known through the work of C. M. Williams, Saeves, W. Jadassohn, Peck and others—it is frequently to be observed that circulating allergens originating from foci on the feet, although entering the blood stream and disseminated through the entire body, repeatedly cause eruptions only upon the fixed and localized hypersensitive (?) areas of the hands. Another and perhaps even more striking example is to be found in the fixed drug eruptions, such as those due to phenolphthalein. Here the drug, taken by mouth, enters the blood stream and must be distributed approximately equally to all organs of the body and all areas of the skin. And yet, in the hypersensitive individual, it frequently occurs that only one small skin area—a round or oval, sharply circumscribed patch—reacts to the circulating drug. All experienced dermatologists have seen cases in which almost incredibly rapid and violent reactions of a patch of skin on the glans penis alone occur within a few minutes of the ingestion of phenolphthalein.

In experimental studies on such a case, Fred Wise and I were able to show that the reaction of the skin is probably caused to localize in a sharply demarcated oval or round area and in that area alone for a certain reason. And this reason may be that either a small artery or a small nerve is responsible for the hypersensitivity; and only that skin field reacts which is fed by the tributaries of this artery or supplied by the branches of this nerve.

In the case of some tuberculids and in bromodermas, there is a striking similarity to the findings of the localized vascular hypersensitivities which must be pre-supposed in thromboangiitis. For in certain of these eruptions, the lower legs are most frequently the seats of the reaction; and in the case of some tuberculids it has even been demonstrated that the inflammation, in all probability, begins in the vasa-vasorum. In fact the observations of vascular reactions in allergy have been on knowledge in the immunobiology of the skin sin

many years (see mention in the works of Philipppson (1901), J. Jadassohn, etc.). The wheal itself is evidence of *vascular* damage, and petechiae and purpuras are among the common vascular phenomena in allergic skin eruptions. Erythema nodosum and erythema induratum, as well as periphlebitis necroticans are dermatological examples of what is often a localized vascular hypersensitivity in the lower legs.

These few examples must suffice to prove that circulating allergens can cause repeated reactions in small circumscribed areas of the blood vessels and in these alone. It is, therefore, possible that in one case, the hypersensitive area may be in the blood vessels of the leg; in another, in a coronary artery; and in still other cases, in stretches of vessels supplying other organs.

I realize that the analogies I have cited offer no explanation as to why such localized vascular hypersensitivities occur, but merely prove that they are rather frequent immunologic phenomena which may be noted in a great variety of diseases of hypersensitivity.

The second immunologic concept necessary to the understanding of thromboangiitis as a disease of hypersensitivity, is that of the *predilection of certain allergens to sensitize certain tissues*, often to the exclusion of all other tissues. We might even say: Each allergen has its favorite point of attack.

For example, we all know that pollens which are aspirated generally cause reactions in the nose and conjunctiva; while animal emanations, such as horse-dander, aspirated in the same manner, usually cause sensitizations of the bronchioles.

The skin again offers many illuminating examples of this selectivity. There are certain circulating allergens—such as quinine and formalin—which attack the epidermis alone; while others—strawberries and shellfish, for instance—usually sensitize only the blood vessels of the upper layers of the cutis. It is for this reason that we dif-

ferentiate between *eczematogenous* and *urticariagenic* noxae. I have already mentioned certain sites favored by drugs in their sensitizations—phenolphthalein eruptions on the penis and bromodermas on the legs.

Further experiments are surely necessary to confirm the third principle, namely, that *far-reaching and permanent organic damage may be caused by reactions of hypersensitivity* in shock tissues. If our conception of thromboangiitis and other vascular diseases of this type as *reactions of hypersensitivity* is to prove correct, then we must postulate such organic changes as the results of allergic reactions. The Arthus phenomenon is one in which a typical hypersensitivity exists, combined with circulating antibodies, and in which permanent damage results. I believe that the fibrotic changes found in chronic asthma and the pale turbinates found in chronic allergic coryzas may, through future study, prove to be based upon organic vascular changes due to allergy. It seems to me only logical that repeated assaults of any kind must—sooner or later—cause organic changes in which scarring and fibrosis and, within the blood vessels, thrombosis may well be the permanent sequelae.

In dermatology we have learned that no one type of tissue reaction is characteristic or pathognomonic of hypersensitivity. Some allergic skin reactions (bromides, iodides) produce pus; and others cause serous exudations. Some allergic manifestations of the skin are typified by evanescent wheals, while others bring about permanent damage. I have seen chronic recurring angioneurotic edemas result in permanent injury to the lymphatics and thereby cause elephantiasis. Many drug eruptions have proliferative and hypertrophic lesions which continue in their growth for incredibly long periods of time after cessation of the ingestion of the drug. In some of these, the histopathology is even sarcoma-like and fatal cases belonging to this category have recently been reported due to bromides and iodides. These examples seem sufficient to illustrate that some allergic shock reactions cause permanent damage;

and that, therefore, this concept, should it be applied to thromboangiitis (and even perhaps to coronary sclerosis or generalized arteriosclerosis) is not as revolutionary as it may, at first, seem.

The fourth fundamental concept which has led me to this method of investigation in thromboangiitis and other vascular diseases, is the observation that the skin is a test tissue or indicator of supreme value in the study of all manner of hypersensitivities of internal organs. This fact is now becoming so generally recognized that I need not dwell upon it at any length. Just as a localized hypersensitivity of the bronchioles is often associated with a skin hypersensitivity to the same substance; or, as a localized sensitivity of the nasal mucosa or conjunctiva may often be demonstrated by skin tests; or, as an echinococcus of the liver or ascaris infestation of the intestines or tuberculous infection of the lungs cause patients to have positive skin responses to the respective extracts; so there is every reason to believe that diseases of hypersensitivity in any organ or part of an organ may be combined with a skin hypersensitivity to the offending allergen.

It therefore follows that every disease which has the earmarks of an idiosyncrasy or hypersensitivity must be studied, in the future, by means of skin tests; and in this study not only intradermal tests must be employed, but all the various types, including patch tests and tests eliciting reactions of the tuberculin type.

There are two other fundamental principles today widely recognized even outside of the circle of those particularly concerned with immunology. I need, therefore, make only brief mention of these two principles of *idiosyncrasy* and of the harmless nature of allergens to those not sensitized.

It is certainly well known to all of you that idiosyncrasy designates an aberrant form of reaction on the part of an individual to certain contacts which elicit no manifest reactions in normal individuals. In idiosyncratic reactions, the effects appear to be out of all proportion to the

quantities of the causative substances. Incredibly small amounts may often suffice to elicit the most severe effects; and the amounts required to elicit such reactions vary greatly, even from one idiosyncratic individual to another. These quantitative fluctuations are far beyond those which one is accustomed to deal with in pharmacologic and toxicologic effects; and the qualitative result is different from the pharmacologic or toxicologic action of the substance concerned.

Thromboangiitis corresponds to the rule in *idiosyncrasy*, for one individual may get thromboangiitis from smoking one cigar or cigarette a day; whereas, in another individual, twenty cigars or cigarettes daily may be necessary; while a third group of individuals—fortunately in the overwhelming majority—may smoke to apparent excess and yet with impunity.

It is in this third type of so-called normal individuals that we see demonstrated the harmless nature of allergens to those not having the idiosyncrasy of being hypersensitive. In the concentrations normally encountered, eggs, bread and milk certainly appear to be the most innocent and innocuous of substances, and yet they have caused reactions of the utmost severity and have even brought about death in idiosyncratic individuals. The anaphylactic shock of guinea-pigs offers a classical example of the fact that infinitesimal traces of a substance, previously harmless, can cause sudden death to the hypersensitive.

It follows that if and when we regard the deleterious effects of tobacco in the light of idiosyncrasy and hypersensitivity, it is no longer necessary to attribute these harmful effects to the action of a poison or alkaloid. In other words, we are not obliged to attribute to *nicotine* all the harmful effects known to be caused by tobacco.

This conception of hypersensitivity to tobacco offers an explanation for the many heretofore irreconcilable clinical and experimental observations of the differences between poisoning by nicotine alone and dama

It may also explain why, in spite of strong clinical evidence that tobacco is the cause of certain pathologic conditions in man, no experimenter among the many who have made the attempt, has been definitely able to reproduce the tobacco effect in animals. All of these former experiments were carried out on *toxicological* lines. We are now obviously proceeding to *sensitization* experiments in animals.

I have now outlined the fundamental immunobiological principles which led to my hypothesis that thromboangiitis obliterans is due to a vascular and localized hypersensitivity to a circulating allergen—namely, in most cases, to tobacco.

The question presents itself: How far have we been able to demonstrate the truth of this hypothesis?

How shall we interpret the findings that among the thromboangiitis patients we have tested, over 77 per cent had skin reactions to tobacco, whereas only about 36 per cent of other smokers reacted? Does it mean that we are justified in concluding that the disease of the blood vessels is due to a localized tobacco-hypersensitivity?

It appears to me that, if positive skin tests (and even the demonstration of reagins) were our only evidence, *we should not be justified in concluding* that tobacco is responsible for thromboangiitis. Positive skin tests to egg-white, for instance, and reagins to egg-white may be found in 50-80 per cent of all cases of infantile eczema. And yet clinical evidence speaks strongly against egg-white being the causative factor in most cases of this disease. I shall cite only two more examples of the many such discrepancies between the results of skin tests, the demonstration of reagins and the clinical findings. I select these two examples in conditions which I have observed or investigated myself. In ascaris infestations one finds almost 100 per cent positive skin reactions and circulating antibodies to ascaris antigen. And yet this seems to have no clinical meaning, for, in the great majority of these individuals, there are no manifestations of disease due to ascaris. As a second ex-

ample, Spain, Shahon, Sammis and I found that in disseminated neurodermites there is an extremely high incidence of positive skin reactions and of reagins to many different allergens and, *particularly, to silk*. In spite of this, the clinical and etiological significance of silk and of many of the other allergens cannot be proven.

It is, therefore, my belief that *both skin tests and reagin demonstrations with an allergen are of significance only in conjunction with and in support of clinical evidence pointing to the same substance*. I believe, however, that *this conjunction and mutual support is present in thromboangiitis obliterans*. The clinical observations—accumulated throughout years and incriminating tobacco—combined with the evidence of the positive skin tests to tobacco in this disease, can lead to only one logical conclusion, namely, that thromboangiitis is, in most cases, probably due to localized hypersensitivity to tobacco allergen and that this hypersensitivity can be studied and demonstrated by skin tests.

There are two more points I should like to mention here. One is that I do not believe that we are, as yet, justified in making as positive a statement as the above in cases of other localized diseases of the vascular system which happen to show positive tobacco tests. I refer, of course, to coronary disease, angina pectoris, etc., for here the clinical evidence is not as conclusive and the incidence of positive tests is not by any means as high. The second point is that if thromboangiitis can be caused by one circulating allergen, it must also be caused—less frequently—by other allergens. I am, therefore, now engaged in experiments upon *tobacco-negative* cases of thromboangiitis. I am testing these with other allergens to determine whether other substances than tobacco may not be the causative agents in some cases of this disease.

In the first of such a series undertaken together with Drs. L. Mamelok and E. Feit, we tested 10 cases of thromboangiitis obliterans with tobacco and with 24 other common allergens. The results were as follows:

- 6 cases were positive to tobacco alone
- 1 case reacted to tobacco and to 4 other allergens
- 1 case gave no reactions
- 2 tobacco-negative cases gave marked positive reactions to other allergens!

None of the 10 cases of thromboangiitis in this series had other allergies or familial histories of allergy. I believe that this series substantiates the statement I have just made, namely: Tobacco is the principal allergen concerned in thromboangiitis, but nevertheless cases of this disease exist which are not hypersensitive to tobacco, and these, in turn, may be found to be sensitized to other substances. It was interesting to note, in this experiment, that all the allergens giving positive reactions belong to the group of the inhalants (dust, duck-feathers, chicken-feathers, kapok and cat-hair). I do not, at this time, wish to comment further upon the analogy between this respiratory absorption of these inhalants and the inhalation of smoke, nor upon the facility which this route offers for absorption into the pulmonary veins, thence to the left heart and to arterial dissemination and the direct sensitization of susceptible portions of the arterial system.

The next experiments which I undertook together with Drs. B. Scholder and E. Feit concerned the question as to whether a positive skin test to tobacco is to be regarded as evidence that sensitization through contact with tobacco has taken place. Should this be true, it may be expected that smokers will give a higher incidence of positive reactions than non-smokers. For, if tobacco sensitizes, although in some cases tobacco smoke or tobacco-dust laden atmosphere may suffice, those persons coming into intimate contact with the allergen through smoking will be more likely to become sensitized.

The results of these experiments were as follows:

In 95 cases of a hospital population, including both male and female smokers (but excluding thromboangiitis obliterans patients and all non-smokers) 36

per cent gave positive skin reactions to tobacco; 58 *non-smokers* in this same hospital were positive in only 16 per cent of the cases. (It is necessary for me to state that both of these groups contained the regular run of the hospital population, including cases of various forms of heart disease and some atopic individuals).

These figures, however, seem to be fairly characteristic of what may be expected in a general run of healthy individuals, for in a group of 38 persons without atopy or the slightest evidence of cardiac, vascular or gastro-intestinal disease, but who were all moderate to strong smokers, exactly the same proportion—36 per cent—had positive skin reactions to tobacco. It seems permissible to conclude from these figures that *skin reactions to tobacco are more frequently encountered in smokers than in non-smokers*; and that the *positive reactions may be considered to be due, in some degree, to sensitizations brought about by smoking*. (See Tables).

TABLE I
IMMEDIATE WHEAL REACTIONS TO TOBACCO IN A
HOSPITAL POPULATION
(EXCLUDING CASES OF THROMBOANGITIS OBLITERANS)

SMOKERS				
	Total Number Examined	Positives	Negatives	Percentage Positive
Males	58	20	38	34 +
Females	37	14	23	38 +
Totals—Smokers in hospital population	95	34	61	36 +
For comparison	38	14	24	36 +
Totals in healthy smokers				
NON-SMOKERS				
Males	13	1	12	8
Females	45	8	37	18 +
Totals—non-smokers	58	9	49	16
Grand total of smokers and non-smokers in hospital population	153	43	110	28 +

In view of the inexplicable preponderance of males and Semites among the thromboangiitis patients, it was necessary to ascertain whether this sex and race evidenced a higher percentage of positive skin tests than others. Our experiments along these lines gave the following results:

In the above-mentioned hospital population, male smokers were positive in 34 per cent of 58 examined, female smokers were positive in 38 per cent of 37 examined.

In another group, consisting of healthy smokers,
38 per cent of males were positive
36 per cent of females were positive.

When all of these persons were classified as to race, there were no essential differences between the Semites and other races—Jews had about the same percentage of positives as non-Jews.

Our experiments have, therefore, given *no clue as to why male Jews are more susceptible* to the type of tobacco hypersensitivity which is associated with thromboangiitis obliterans. We can only offer to ourselves the rather dubious consolation of recalling that there are other diseases which are more or less sex-linked, and still others which are more likely to affect the Semitic race. Of the former, I may mention hemophilia, certain forms of ichthyosis and perhaps erythema induratum.* While in the latter group, I should like first to recall the disease studied by our President—*Tay-Sachs disease*—then *pemphigus*, then to a lesser degree *diabetes* and *Kaposi's sarcoma*.

The next group of cases which we studied as to their skin hypersensitivity to tobacco comprised patients suffering from hypertensive and atherosclerotic heart disease and from chronic rheumatic cardio-valvular disease. Among these there were both males and females, smokers and non-smokers. The figures are as follows:

*The analogy is here striking; for this is a vascular hypersensitivity to the products of tubercle bacilli, occurring in the lower legs, and affecting, almost exclusively young women.

6 out of a total of 35, or 17 per cent were tobacco positive in the hypertensive and atherosclerotic group.

10 out of 38, or 26 per cent were positive in the rheumatic group.

In these two groups considered as one, 22 per cent gave positive skin reactions, as compared with 28 per cent positives in a total hospital population of smokers and non-smokers, including all diseases except thromboangiitis.

The conclusion to be drawn from these statistics is that the incidence of positive skin reactions to tobacco in the cases of heart disease investigated was no higher than that to be found in the general run of hospital patients. I wish to call attention expressly to the fact that we did not specifically investigate coronary disease or angina pectoris, as such.

I now come to the *only group in which we were able to demonstrate a much higher incidence of tobacco skin reactions* than in any other diseases heretofore mentioned and/or in any group of controls, namely, the 13 cases of typical *thromboangiitis obliterans* which we had available for this study:

10 of these 13, or approximately 77 per cent had from moderate to very strong reactions to tobacco. (See Tables).

As above stated:

The 2 of the 3 tobacco-negative cases which we tested further were found positive to other inhalant allergens, and 1 gave no reactions to the 25 allergens employed.

Of the 7 tobacco-positive cases which were tested with other allergens, 6 were found to react to tobacco alone and 1 to tobacco and some other inhalants.

TABLE II

COMPARISON BETWEEN HEALTHY MALE AND FEMALE
SMOKERS IN REGARD TO IMMEDIATE WHEAL
REACTIONS TO TOBACCO

	Total Number Examined	Positives	Negatives	Percentage Positive
Males	13	5	8	38 +
Females	25	9	16	36
Totals	38	14	24	36 +

TABLE III

COMPARISON BETWEEN IMMEDIATE WHEAL REACTIONS TO
TOBACCO IN HEART DISEASES, IN A GENERAL HOSPITAL
POPULATION EXCLUDING THROMBOANGIITIS OBLITERANS,
AND IN THROMBOANGIITIS OBLITERANS

	Total Number Examined	Positives	Negatives	Percentage Positive
Hypertensive and atherosclerotic heart disease	35	6	29	17 +
Rheumatic heart disease	38	10	28	26 +
Total heart diseases	73	16	57	22
General hospital population	153	43	110	28
Thromboangiitis Obliterans	13	10	3	77

These figures permit but one conclusion. In the cases which we have investigated, *thromboangiitis is a disease accompanied by skin hypersensitivity to inhalants (in our cases 12 out of 13 had positive skin tests in this group) and, among these inhalants, tobacco plays the most important role (77 per cent positive).*

Taken in conjunction with the clinical evidence incriminating tobacco in this disease, and in consideration of the immunobiological principles as outlined, I believe it permissible to conclude that our findings are strongly suggestive that many cases of thromboangiitis may be due to localized and fixed areas of hypersensitivity in certain parts of the vascular system; and to reactions produced in these areas by circulating allergens—chiefly by tobacco.

The next group of experiments undertaken by Feit, Scholder and myself concern themselves primarily with questions which may possibly be of more practical interest.

The basic premise upon which the evaluation of the results of these experiments will rest is that, in diseases due to hypersensitivities to certain substances and with positive skin reactions to these substances, it may be regarded as axiomatic that the very constituent of this test substance which is found to cause the skin reaction, is also causative of the disease. In other words, if in a ragweed hypersensitive case, ragweed *protein* is found to elicit the skin reaction, it may be assumed that ragweed *protein*—and not ragweed oil and/or other fractions—has caused the disease. It must follow that that portion of the whole which gives a positive skin reaction is the one which is of clinical significance. It may be cited, in substantiation of this assumption, that, in addition to other supporting evidence, Coca and Grove have found that in a case of ipecac hypersensitivity, the ipecac protein caused both the skin reaction and the pathological condition, whereas the alkaloid of ipecac—emetin—neither caused the clinical manifestations nor elicited a skin reaction.

On this basis, it is permissible to attempt an analysis of tobacco with the object of ascertaining which fraction or fractions cause the skin reaction in diseases of tobacco hypersensitivity; and, thereby, to determine which fraction may perhaps be considered the cause of the disease.

In the mixture of known and unknown substances which is called tobacco, *nicotine* is the ingredient which has been most universally blamed. And yet, as stated, many investigators have called attention to the *discrepancies between the results of clinical and experimental nicotine poisoning and the effects due to contact with the whole tobacco*.

Employing the skin tests and the reactions with reagins as a new method for analyzing tobacco as to its harmful components, our first investigation had for its object to

ascertain whether nicotine or some other constituent or constituents of tobacco caused the reactions in the diseases of probable tobacco hypersensitivity studied:

13 cases of thromboangiitis obliterans

9 cases of other conditions in which there was clinical evidence incriminating tobacco as a cause

3 controls.

All were tested with practically denicotinized tobacco extracts (which were no longer toxic to mice) and a solution of nicotine sulfate (which was lethal to mice in doses of 0.2 c.c.).

In all of these cases but one, nicotine caused no reactions, while the tobacco extracts caused moderate to strong reactions in all cases but 4 of 25 investigated.

The reagins to tobacco which could be demonstrated in only 2 of these cases (1 thromboangiitis and 1 rheumatic heart disease) did not sensitize to nicotine, but sensitized the skin of normal individuals to the "denicotinized" tobacco extracts.

[I wish to call attention to the fact that our experimental results are in contradiction to that which has been reported by other observers in thromboangiitis. We could not convince ourself that reagins to tobacco (specific passive transference antibodies) were present in the majority of our cases].

One is, therefore, permitted to conclude that many cases of thromboangiitis obliterans and some of the other diseases similarly tested (see in Tables) and in which the clinical role of tobacco was evident, are in some way related not to a nicotine effect, but to a reaction of hypersensitivity to a constituent or constituents of tobacco other than nicotine.

TABLE IV

COMPARISON OF IMMEDIATE WHEAL REACTIONS TO DENICOTINIZED TOBACCO EXTRACT AND A 0.4% NICOTINE SULFATE SOLUTION. (ALL PATIENTS WERE SMOKERS)

Patient	Diagnosis	Tobacco reaction	Nicotine reaction
1. Rafalowitz	Thromboangitis Obliterans	3 plus	0
2. Nechanhus	" "	0	0
3. Leibowitz	" "	2 plus	0
4. Bloch	" "	0	0
5. P. Torr.	" "	2 plus	1 plus ?
6. Max Sil.	" "	3 plus	0
7. Morris K.	" "	1 plus	0
8. Ab. Her.	" "	1 plus ?	1 plus
9. Rubin. Z.	" "	2 plus	0
10. Sol. Blo.	" "	2 plus	0
11. Sol. Alb.	" "	2 plus	0
12. Alex. Lau.	" "	1 plus	0
13. Barney Zu.	" "	0	0
14. Harry Ber.	Rheumatic heart disease	2 plus	1 plus ?
15. Abrah. N.	Angina and precordial pain	2 plus	0
16. Haberman.	Hypertension and precordial pain	1 plus	0
17. Louis Ka.	Substernal pain	1 plus	0
18. Marion S.	Migraine and palpitation	1 plus	0
19. Paul Hir.	Migraine, gastrointestinal upsets and neuritis	1 plus	0
20. P. Ker.	Anginal pains	1 plus	1 plus ?
21. Rosensch	Arteriosclerosis	1 plus ?	0
22. O. Irish.	Tobacco (?) neuritis	2 plus	0
23. Ledford	Normal—cigarette smoker	1 plus	0
24. M. Baker	Normal—cigarette smoker	0	0
25. M. Scott	Normal—cigarette smoker	1 plus ?	1 plus ?

This finding may be of far-reaching and practical importance. First, it gives us an explanation of the discrepancies formerly noted between tobacco effect and nicotine effect. Second, it makes it probable that the attempt to "denicotinize" fails of its objective in cases of tobacco hypersensitivity. Denicotinized tobacco would possibly be just as harmful, in these cases, as tobacco with its full nicotine content. I do not wish to imply that nicotine poisoning *per se* does not exist; nor that there are not cases in which the nicotine brings about the deleterious effects. But, in those cases of hypersensitivity which we have studied, the

main evils may result from fractions of tobacco other than nicotine.

Once we have determined that "denicotinizing" tobacco does not necessarily render it innocuous in cases of hypersensitivity such as we have studied, it is obvious that we must seek new methods for discovering the truly harmful ingredient or ingredients of tobacco. And, of even greater practical importance, we must endeavor to perfect methods for eliminating or destroying the noxious component or components. I am now engaged in further investigations along these lines and here wish to report the results of only a few preliminary experiments:

We were able to demonstrate that skin reactions elicited by a) untreated tobacco extracts, b) extracts which had been treated with moist heat for 1 hour at 58 deg. Centigrade, and c) extracts which had been boiled for 1 minute—were essentially the same.

These 3 differently treated extracts also elicited reactions of equal intensity and size when they were injected into sites passively sensitized with reagents.

The active factor in the tobacco extracts is thus proven to be both thermo- and coctostable. This brings tobacco sensitization into even closer relationship with other plant sensitizations for the so-called pollen and plant "proteins" also retain their activity after similar treatment. It also suggests that the unchanged allergen can be present in the smoke.

It seems highly significant, in this connection, to point out that I have observed two other distinct types of allergic skin response to tobacco extracts. One is the *eczematous response to patch testing*; and the other, the *late reaction*, at the site of the intradermal injection reaching its acme after about 48 hours. The latter corresponds in its development and appearance to positive tuberculin and trichophyton reactions. I have found, in all manner of sensitizations I have studied, the immediate wheal, the eczematous and the tuberculin-like reaction to be phenomena which

occur independently of each other. By this I mean, a patient may have either any one, or two, or even all three of these types of reaction. They seem to be three entirely different manifestations of hypersensitivity without any obligatory interrelationship. And yet, in tobacco hypersensitivities, I have found that in all three types of skin reaction, the nicotine never elicited a response and the denicotinized tobacco extracts caused the reactions. (About 100 cases have now been tested and there was only 1 with a slight wheal reaction to nicotine. See Tables).

The significance of the eczematous reaction seems clear to me. I have found positive eczematous reactions to patch tests in the four cases of tobacco eczema I investigated and in no other of a large group of patients thus tested.

Practically all of our intradermally tested cases were examined after 48 hours for the presence of the tuberculin-like reaction. This was occasionally found and was sometimes relatively severe. At the present early stage of our investigations, we can advance no theory as to the significance of this type of allergic response to the tobacco allergen, for it occurred irregularly and in apparently haphazard fashion, both in normals and in the diseases studied.

I have two reasons for mentioning these different forms of skin reaction. One is to point out the necessity for further study of the tuberculin-like type of reaction; and the other is to confirm, once again, that the *sensitizing factor in tobacco is not the nicotine*; for, *just as was the case in the immediate wheal reactions, patients with positive eczematous or with positive late reactions were skin-hypersensitive to tobacco and not to nicotine.*

Extracts made from three different mixtures of tobacco were used on all of our cases. We found that of the positive cases tested, some reacted to only one of the extracts; some to only two; and some to all three extracts. In other words, any given tobacco-positive patient might prove sensitive to only a given mixture of tobacco and not sensitive to any other mixture.

One of our cases of tobacco eczema in a cigar-maker was particularly illuminating in this respect. This patient had an extremely strong reaction at the site of the patch test with a *shade-grown Connecticut wrapper*, whereas both the sites tested with Wisconsin filler and with the nicotine solution *remained negative*. These findings were confirmed by repeated tests.

Dr. Maximillian Ramirez has kindly permitted me to report his observations in a similar case. The patient suffered from a perioral eczema, which also affected the portions of his face which usually came into contact with the smoke from his cigarette. *Patch tests with tobacco from Chesterfield cigarettes were positive; patch tests with other brands were negative*. The patient had been smoking only Chesterfields; since stopping smoking the eczema has cleared up.

It is obvious that this new approach through the immunobiological analysis of tobacco to ascertain the sensitizing and/or harmful ingredient must be further continued and extended. One of the questions to be answered is: Do the harmful or sensitizing ingredients pass into the tobacco smoke in appreciable quantities? Our own experiments in this direction are not yet conclusive, but it seems probable that at least some cases are sensitized to substances contained in the smoke itself. I believe, however, that other individuals may be sensitized only to such constituents of the plant which do not pass into the smoke in quantities sufficient to be harmful. This belief is based upon the observation that some patients react to extracts made from the leaf and do not react to extracts prepared from smoke. Dr. Robert A. Cooke has permitted me to mention experiments which he carried out with smoke and with tobacco leaf extracts several years ago; and which, in some cases, elicited this divergence between the reactions to smoke and to leaf extracts.

It remains for me to inquire what practical results may have been approached or achieved through these immunobiological studies with tobacco.

Can we, in diseases in which tobacco hypersensitivity may be suspected, *determine by means of skin tests whether or not the patient may continue the use of tobacco with impunity?* I believe that the answer to this question is, unfortunately, *No*—and will remain *No*. For, while it is obvious that we must forbid the use of tobacco in cases in which there are positive skin reactions and clinical evidence incriminating the plant, I believe it will always be equally necessary to forbid the use of tobacco to individuals with clinical evidence of tobacco hypersensitivity but with negative skin tests. And this because, while the skin often indicates the state of hypersensitivity of internal organs, this is not always the case. It must, as yet, be considered just a lucky chance that a skin hypersensitivity so frequently accompanies an internal one to the same allergen. Cases must exist in which the internal sensitivity occurs alone and unaccompanied by skin sensitiveness; and these would prove negative to the skin test and yet suffer from the use of tobacco.

Another question which presents itself: How far have we proceeded towards determining the nature of the harmful action of tobacco?—I believe that we have achieved a considerable advance in this direction, for we have demonstrated in the diseases investigated, that the major harm is probably done by fractions of tobacco other than nicotine. This seems to change our whole approach to the study of tobacco effects, from the pharmacologic and toxicologic fields to the immunologic one.

This shift brings in its train new methods of investigating and therefore, perhaps, of solving old and baffling problems. As recently as September 1932, Friedrich Mueller stated in the *Muenchener Medizinische Wochenschrift* that *it was certain that the deleterious effects of smoking were mainly attributable to nicotine*. This toxicologic conception has hit upon many snags in the form of inexplicable observations and has certainly not been of heuristic value.

I believe and hope that with the immunologic concept—that *certain tobacco effects may be regarded as sensitiza-*

tions to allergens and not as poisonings—and through the new approach made possible by this allergic concept, we may be in a better position to study many important and practical problems.

We have commenced investigations upon several of these. The differences which have been observed in the same individual in his reactions to different mixtures of tobacco lead us to believe that *we may be able to ascertain, in each individual case, just which tobaccos are most likely to be harmful to that individual; and which he may be permitted to continue using with least risk. We may also be able to discover which particular tobaccos give the least number of positive reactions in the general run of individuals and thus, perhaps, determine which tobaccos are least likely to prove injurious.* For this purpose we are engaged in experiments with extracts made from a variety of tobaccos grown in different localities and under different conditions and treated in various ways; as well as with extracts of mixtures as found in the standard brands of cigars, cigarettes and pipe tobaccos.

And we are, naturally, subjecting our extracts to all manner of treatment—such as chemical procedures, ultra-violet and X-rays, etc.—in the hope of finding a method of destroying and eliminating the sensitizing fraction or fractions without damaging the tobaccos' aroma or flavor.

I can only hope that I have succeeded in bringing out the great potential significance of the immunologic approach to tobacco damage. Much work is to be done here, and many investigators may study this problem from various angles.

Before closing, I feel that mention must also be made that this new concept can and should be applied to many other diseases of unknown etiology, which bear the characteristics of idiosyncrasy.

For instance, I am now engaged in an investigation of alcoholic psychoses from the allergic viewpoint, together

with a psychiatrist who has particularly devoted himself to the study of these conditions. I most recently observed a case with a psychotic reaction following the drinking of small quantities of rye whiskey, and with a positive wheal reaction to rye allergen.

I am sure that some of you will think that I have exaggerated ideas as regards the use of skin tests. Perhaps this is true. But when I say that skin tests must and should be employed in the greatest variety of pathological conditions, I fully realize that they will meet with success in only a few. But these few successes will surely make the trouble and time expended worth while.

When I urge that many other diseases be studied from the immunologic-dermatologic viewpoint, I mean that these comparatively new methods should now be employed in the same spirit as we have been using bacteriologic, pharmacologic, histologic and other established approaches.

In the case of some vascular diseases of tobacco hypersensitivity, I believe that the new approach has already taught us that it is probably more correct to speak of tobacco as the "*noxious weed*" than to refer to it as "*My Lady Nicotine*."



TOBACCO SENSITIVENESS IN THROMBOANGITIS OBLITERANS, MIGRATING PHLEBITIS AND CORONARY ARTERY DISEASE*

(ABSTRACT)

JOSEPH HARKAVY

The role of allergy in disease is an accepted fact. Protein hypersensitiveness as responsible in certain affections of the respiratory tract such as asthma, hayfever, in the gastro-intestinal tract due to foods, in the skin as well as certain forms of arthritis is generally accepted. Little if any investigation, however, has been done from the point of view of protein sensitiveness in one of the most important systems of man, the vascular. And yet animal anaphylaxis, the prototype of human allergy, is characterized by vascular shock such as spasm of the pulmonary artery of the rabbit and hepatic veins in the dog.

The experience which led to the present investigation concerned a patient who is sensitive to the spring and fall pollens and had recurring sinusitis throughout the year due to food sensitiveness. He was a moderate smoker of cigars and cigarettes. Because smoking was always followed by mild toxic symptoms he eliminated cigars. After two months of abstinence he partook of a cigar and fifteen minutes later went into shock characterized by vomiting, diarrhea and vaso-motor collapse. The pulse was rapid and irregular throughout the night. These symptoms disappeared completely the following day.

The sequence of events together with the history in this case were interpreted as being the results of sensitization to tobacco in an allergic individual who had never

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become immune. Skin tests with tobacco antigen, which has been used for *the past ten years* testing asthmatics by I. C. Walker, Rich, Brown, myself and others showed this patient to be sensitive.

As a result of these observations it occurred to me to investigate other clinical states in which tobacco might play a role. Thrombo-angiitis obliterans, migrating phlebitis, coronary artery disease and tobacco anginas, known to clinicians for many years as occurring in smokers were obviously most suitable for such investigation.

The problems for solution were as follows: first, what role did tobacco and tobacco smoke play in these pathological conditions; secondly, if tobacco was the incriminating agent why did it affect some and not other smokers; third, did tobacco act as a toxin or in the nature of a sensitizing agent similar to pollen, in hayfever. In other words were the patients suffering from thrombo-angiitis, migrating phlebitis, certain forms of angina pectoris in the category of allergic individuals.

Typical cases of thrombo-angiitis observed for a number of years in the thrombo-angiitis clinic as well as migrating phlebitis were selected for this investigation. The cases of coronary artery disease were from the services of Drs. Baehr and Oppenheimer at the Mount Sinai Hospital.

My first observations published in the Proceedings of the Society for Experimental Biology and Medicine in October, 1932, which have been recently confirmed by Sulzberger, dealt with results obtained in 68 cases of thrombo-angiitis and 122 controls. The presentation this evening is based on a study of 87 cases of thrombo-angiitis obliterans, 5 cases of migrating phlebitis, 35 cases of angina pectoris and coronary artery disease and 281 controls. The controls included 226 males and 55 females. All the male controls were smokers addicted to the use of tobacco. They consisted of 42 college students, between the ages of 16 to 21; 88 adults mostly Russian Jews between the ages of 26 to 68, suffering from all sorts of ailments, such as hyper-

tension, nephrolithiasis, carcinoma of stomach, bronchiectasis, pulmonary neoplasm, etc.; 26 cases of circulatory disturbances of the extremities atherosclerotic in nature; 5 of infectious asthma, 60 cases of ulcer of stomach and duodenum and 15 cases of hayfever. The 226 male controls were comparable in race, the duration and amount of tobacco used with the thrombo-angiitis patients. The 55 female controls were practically non-smokers, 18 of these had hypertension and diabetes and 28 miscellaneous diseases.

The tobacco employed in our investigations consisted of the uncured leaf of Burley, Maryland, Virginia and Xanthi (Turkish). Separate extracts of these were made according to the method of Coca. In addition we used a tobacco extract representing a mixture of various tobaccos which we obtained from the Allergy Department of the New York Hospital through the courtesy of Dr. Cooke. This extract was labelled "Coca" and gave us the largest number of positive reactions. It was prepared according to Dr. Coca in such a manner as to make it as nicotine free as possible.

Every case of thrombo-angiitis obliterans and every control was tested with the five different tobaccos. All the extracts were diluted 1 to 10, because the original solution was irritating and produced false positives. In addition to the tobacco, 12 cases have been tested with a solution of tobacco smoke prepared by Dr. Harry Sobotka, and 12 with nicotine. Every patient and every control was also tested with .01 ragweed and Coca's extracting fluid. The ragweed was important because in this way we picked up latent hayfever patients and obtained a clue as to a family history of allergy. The technique was the one employed in the testing of hayfever or asthma patients. The outer arm was injected intracutaneously with approximately 0.01 c.c. of the tobacco extract and reactions read within 15 to 20 minutes. The results were as follows:

1. 76 out of 87 cases of thrombo-angiitis obliterans between the ages of 22 and 58 were found to be hypersensitive to various tobacco extracts, an incidence of 87 per cent.

2. Out of 262 male cigarette smokers used as controls, 43 were positive, an incidence of 16 per cent. If out of this number the coronary artery and ulcer groups are omitted there are left 166 individuals with no known allergic stigmata, amongst whom 14 react, an incidence of 9 per cent. The reactions in these were at most two plus.

3. Out of 26 patients with circulatory disturbances of the extremities on an atherosclerotic basis, one reacted to tobacco; 25 were negative. This one also had coronary artery disease.

4. Of 43 women, non-smokers, only three reacted. These were constitutionally allergic. Of six women smokers, three reacted, but they all had allergic stigmata. This group is too small to be of significance.

5. In addition to the skin tests, the presence of reagins to tobacco was demonstrated in the sera in 15 out of 22 patients with thrombo-angiitis obliterans by means of the passive transfer method of Prausnitz and Kustner. This consists of withdrawing ten c.c. of blood from the arm vein of a patient with thrombo-angiitis, clotting it and injecting 0.15 c.c. of serum intradermally into various sites of the forearm of normal individuals who did not react to tobacco on preliminary testing. Three days later these sites are re-injected with the tobacco to which the patient had originally reacted. In the presence of antibodies, an urticarial wheal will appear in the sensitized skin area of the normal individual, similar to that obtained in the thrombo-angiitis patient. The occurrence of reagins to tobacco in our thrombo-angiitis cases indicates that we are dealing with individuals who are in all probability allergic, and that the positive phenomena are true antigen-antibody reactions.

6. Four out of ten cases of thrombo-angiitis reacted by skin tests to tobacco smoke. These reactions, however, need further investigation and corroboration.

7. Skin tests with a 10 per cent solution of nicotine tartrate diluted to 1:10000 and 1:5000 were negative. These

findings, nevertheless, do not as yet rule out nicotine as possibly playing an accessory role, for it is well known that sensitiveness to certain drugs and chemicals may exist in spite of negative skin reactions, etc.

8. Multiple sensitization to other proteins characteristically prevalent in allergic individuals was also found in 27 of the thrombo-angiitis patients in the form of various skin reactions to foods and inhalants. Further investigation of the concurrent responsibility of these foods, etc., in thrombo-angiitis will have to be made.

9. Of five cases of migrating phlebitis in whom infections such as rheumatic fever, tuberculosis and syphilis were ruled out, two reacted to tobacco, one was completely negative and four showed multiple sensitizations to various foods and inhalants.

10. Out of 60 cases of gastro-duodenal ulcer 16 or 26 per cent were sensitive to tobacco; 11 of these had either a personal or family history of allergy.

11. Study of 36 cases of coronary artery disease all of whom were smokers with the syndrome of angina pectoris indicated that 13 (36 per cent) were tobacco sensitive. The average age of the patients who reacted to tobacco was 45. This is comparable to the age group suffering from thrombo-angiitis. In four out of six of these cases reagins—antibodies—for tobacco were demonstrated in the serum by passive transfer. The average age of the coronary patients who failed to react to tobacco was 60.

CONCLUSIONS

1. These observations suggest that tobacco sensitiveness may play an important role in thrombo-angiitis obliterans. These patients may be said to belong to the category of allergic individuals.

2. 36 per cent of the patients with coronary artery disease with a syndrome of angina pectoris were found to be sensitive to tobacco, the incidence being especially conspicuous in those who develop the disease at an early age.

DISCUSSION

STATED MEETING—FEBRUARY 2, 1933

HARLOW BROOKS

I came here tonight somewhat frightened at what might be said against my kindly friend, tobacco. It is true that these studies, which we all admire very much I am sure, do show to a very striking degree sensitivity to a skin test in a group of vascular diseases in which clinicians have long expected that tobacco might be injurious. It seems that the tobacco may play some such deleterious role in these vascular states. However, I can see nothing which has been produced tonight which shows any definite proof insofar as etiology is concerned. It appears to me that this is really the crux of the situation. Furthermore, arrayed against this evidence shown tonight and which I confess I am partial to accept, is the enormous amount of negative experimental work which has been done by investigators, some of whom have been almost religiously fanatic in an attempt to show that tobacco does do these evil things.

Many of you are old enough to remember, for example, the work that Dr. I. Adler did in this line of research, producing finally no evidence whatsoever that tobacco produced serious tissue changes. At that time I was associated with Dr. Adler in some negative experimental work and I have since kept rather familiar with the experimental data along this line. It has never been shown without more than reasonable doubt that tobacco produces any lesions, to say nothing of such as are basically concerned in the diseases under discussion tonight.

Again it strikes me as peculiar that these allergic conditions should produce such striking changes as we find in thrombo-angiitis obliterans when the reaction is so negative in productive pathology in all other allergic states. I am still very glad to think, however, that thrombo-angiitis obliterans is a very rare disease and that there are a great many of us who enjoy tobacco and shall continue to do so.

terious element contained in tobacco. It is the popular belief that the whole effect of tobacco is contained in nicotine, hence we hear and see the widely advertised denicotinized tobacco. The Connecticut Agricultural Experiment Station has told us that the much advertised and best processed denicotinized cigarettes are but little altered in their nicotine content. It also states that there are common untreated brands of tobacco in which the nicotine is even less than in the processed brands.

Tobacco smoke contains a good many things beside nicotine, such as pyridine to which the "smoker's throat" is due, carbon monoxide, furfural (to which the headache is ascribed), irritant aldehyde, ammonia, hydrocyanic acid, volatile oil, phenols, quinoline, picoline, lutidine, collidine and perhaps some other substances in small amounts. What the full effect of these various substances is on the smoker, we do not know. Some work has been done to show that the amount of carbon monoxide in the smoke may be sufficient actually to change the oxygen carrying power of the hemoglobin. In other words, we can get from the carbon monoxide of tobacco smoke some of the effects on the oxygen content of the blood that we theoretically think produces the pain in the so-called anginas. Some have shown that when anemia is present in the patient with angina the pain may be more easily produced; for, the improvement of the anemia permits the patient to do things without the production of pain. Since the pain of angina may be increased by smoking tobacco it is possible that it is due to the relation of carbon monoxide and the oxygen carrying power of the blood. According to Barcroft there are three ways in which an anoxemia is produced: (1) not enough oxygen in the air, as at high altitudes; (2) not enough oxygen carried, as in anemia; (3) motion of blood too slow, as in congestion. Sir Thomas Lewis suggests that the pain may be due to the accumulation in the intercellular spaces of the products of physiologic contraction of the heart muscle and it is the washing out of these products by increased flow of blood that relieves the pain.

It has been stated here tonight that the development of intermittent claudication relieves the pain in the chest. This may be due to the greater relative limitation of effort by the claudication as contrasted with the coronary disease. The relief of the pain due to impaired coronary circulation under these conditions is probably due to the limitation of muscular or physical effort. The claudication restricts them to less muscular effort and this is within the limitation of the effort which the heart can sustain. It is not necessary to assume that there are changes in the blood vessels.

We have then three fundamental things to think about. What sure evidence have we of the effect of tobacco—there are changes in cardiac rate and rhythm—extra-systoles or premature contractions—Both these conditions clear up on the discontinuance of tobacco. Precordial or cardiac pain behaves the same way. These are symptoms due to physiologic reactions. But it does not follow that because these reactions can be increased or decreased by tobacco that there is an etiologic relation between these constituents and the production of coronary artery changes or athero-sclerosis.

DISCUSSION

STATED MEETING—FEBRUARY 2, 1933

LEWIS A. CONNER

I think that we all must have been struck with the fact that the two papers dealing with the effects of tobacco in man presented tonight are of a very different type from the usual article upon that subject with which we have been familiar in the past; which for the most part was filled with generalities and impressions, which often showed a bias either for or against tobacco, and which offered little in the way of concrete evidence. These papers and this work, it seems to me, are very impressive. The work is so appealing that I find myself able only by a conscious

effort to resist the temptation to accept its implications as the solution of the problem of the etiology of thromboangiitis obliterans, and yet obviously we cannot quite do that. Doctor Harkavy would be the first to say that these findings are only suggestive and that much more needs to be done before we can accept his evidence as conclusive. But the evidence is certainly impressive and should be most encouraging to him in his effort to solve this problem.

In speculating upon the sort of vascular effect we might expect to see as the result of the long continued use of tobacco in sensitive individuals one would probably think first of increased vascular tone or a tendency to vascular spasm. In thromboangiitis obliterans, however, the process is an inflammatory one with early occlusive thrombosis, and vascular spasm seems to play no important rôle. It would seem unlikely that such a progressive inflammatory process should be the result of allergic manifestation, and yet we do know that, rarely, thrombophlebitis has occurred as an allergic phenomenon. Of course the criticism that must occur to all of us at once is that with perhaps nine or ten per cent of the whole population of smokers hypersensitive to tobacco, as I understand Doctor Harkavy's figures seem to indicate, it is very hard to understand why, with excessive tobacco smoking so common, thromboangiitis obliterans should be relatively so rare. It seems evident that at best hypersensitiveness to tobacco can be only one of a group of factors which must include at least those of race, age, and sex.

Nevertheless the results of these investigations are most interesting and striking, and should open up a large field of further study.

FEE-SPLITTING. REPORT OF THE COMMITTEE ON PROFESSIONAL STANDARDS

APPROVED BY THE COUNCIL MARCH 22, 1933

During the winter of 1932 a Committee of the Medical Society of the County of New York discussed the subject of fee-splitting at great length. There was also some action taken by the House of Delegates at the annual meeting of the Medical Society of the State of New York.

As the result of these two actions, several Fellows of the Academy urged The Committee on Professional Standards to state the question anew. The Committee therefore reports to the Council as follows:

The American Medical Association in its principles of medical ethics, forbids the division of fees and the giving of rebates.

The Medical Society of the State of New York adopted independently a series of statements known as the Principles of Professional Conduct of the Medical Society of the State of New York. The principles adopted in 1905 in regard to fee-splitting are embodied in Section 32 and read as follows:

"Physicians shall not give, offer or promise to any person who may have recommended, referred or procured for them patients for medical or surgical treatment, any gift, gratuity, commission or bonus, nor shall any physician request, solicit, accept or receive any such gift, gratuity, commission or bonus."

This was amended in 1931 to read as follows:

"Physicians shall not give, nor offer, nor shall they undertake or promise to give, either directly or indirectly, any gift, gratuity, commission or bonus in consideration of or in return for the referring, recommending or procuring of any patient for medical, surgical or other treatment or in consideration of or in return for the referring, recommending or procuring of any person, specimen or material for diagnostic or other study or work, nor shall any physician request, solicit, accept or receive any such gift, gratuity, commission or bonus."

When the practice of fee-splitting appeared to be growing more extensive, The New York Academy of Medicine took action on May 25, 1911, and resolutions were adopted by the Academy and mailed to every Fellow of the Academy. The resolutions read as follows:

RESOLVED that the secret division of a fee, or fees, with any person or persons, who may be instrumental in influencing a patient, or patients, to apply for operative care or professional advice, is unworthy of any member of the medical profession.

RESOLVED that if such a division of fee is made by a member of The New York Academy of Medicine it should be counted as a sufficient ground for the expulsion of the member.

RESOLVED that the Council considers it its duty to investigate charges against members made on the basis of such division of fee, and on receipt of proof of offense the Council may either permit the resignation of the person or expel him from the Academy.

Similar action was taken in December, 1930, which reads as follows:

RESOLVED that The New York Academy of Medicine endorses the principles embodied in the Principles of Professional Conduct of the Medical Society of the State of New York in regard to the division of fees and be it further

RESOLVED that The New York Academy of Medicine reaffirm its action taken in 1911.

Every endeavor has been made in the last few years to make it known to physicians that the secret division of fees is not only unethical but in many instances flagrantly dishonest, by the above resolutions and by the above further action taken by the Academy in 1930. And in 1930 the Committee on Admissions of the Academy was instructed by the Academy to see that the following statement be

printed upon the application form and signed by the candidate:

RESOLVED that the secret division of a fee, or fees, with any person or persons, who may be instrumental in influencing a patient or patients, to apply for operative care or professional advice is unworthy of any member of the medical profession.

RESOLVED that if such a division of fee is made by a member of The New York Academy of Medicine, it should be counted as a sufficient ground for the expulsion of the member.

RESOLVED that the Council may either reprimand the person or permit his resignation or recommend him to the Academy for expulsion.

The Committee on Professional Standards on February 23, 1933, recommended to the Council of The New York Academy of Medicine:

1. That the Council condemn again the practice of the secret division of fees.
2. That the Council suggest to consulting specialists and surgeons that they render all assistance possible in educating the public by explaining to patients and their families the need and value of the family physician's services.
3. That this report be published in the Bulletin of the Academy.

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- Jordan, H. E. & Kindred, J. E. A text-book of embryology.
N. Y., Appleton, 1932, 613 p.
- Judine, S. La transfusion du sang de cadavre à l'homme.
Paris, Masson, 1933, 144 p.
- Kissmeyer, A. La maladie de Boeck.
Paris, Masson, 1932, 147 p.
- Krusen, F. H. Light therapy.
N. Y., Hoeber, 1933, 186 p.
- Lambert, G. O. Cardiovascular pain as a biochemical problem
London, Lewis, 1933, 75 p.
- LaMotte, F. L.; Kenny, W. R. & Reed, A. B. pH and its practical application.
Balt., Williams, 1932, 262 p.
- Lapière, S. Le mycosis fongioïde.
Paris, Masson, 1932, 122 p.
- Le Bourdellès, B. & Jalet, J. La tuberculose du lobe azygos.
Paris, Doin, 1933, 158 p.
- Lewis, (Sir) T. Diseases of the heart.
London, Macmillan, 1933, 297 p.

- Lucien, M. & Vermelin, H. *L'oeuf humain et ses annexes.*
Paris, Doin, 1933, 157 p.
- McCleary, G. F. *The early history of the infant welfare movement.*
London, Lewis, 1933, 176 p.
- McGregor, A. L. *A synopsis of surgical anatomy.*
N. Y., Wood, 1932, 609 p.
- MacKenna, R. W. *Diseases of the skin.* 3. ed.
Balt., Wood, 1933, 506 p.
- Magnus-Alsleben, E. *Vorlesungen über innere Medizin.* 5. Aufl.
Berlin, Springer, 1932, 485 p.
- Maingot, R. H. *The management of abdominal operations.*
N. Y., Wood, 1932, 311 p.
- Massey, A. *Epidemiology in relation to air travel.*
London, Lewis, 1933, 59 p.
- Matheson, R. *Medical entomology.*
Springfield, Ill., Thomas, 1932, 489 p.
- Mourgue, R. *Neurobiologie de l'hallucination.*
Bruxelles, Lamertin, 1932, 416 p.
- Much, H. C. R. *Hans Much, Arzt und Mensch.* [2. Aufl.]
Dresden, Reissner, 1933, 267 p.
- Nager, F. R. & Meyer, M. *Die Erkrankungen des Knochensystems und ihre Erscheinungen an der Innenohrkapsel des Menschen.*
Berlin, Karger, 1932, 231 p.
- Ogilvie, W. H. *Treatment of fractures in general practice.*
London, Bale, 1932, 2 v.
- Pardee, H. E. B. *Clinical aspects of the electrocardiogram.* 3. ed.
N. Y., Hoeber, 1933, 295 p.
- Pepper, O. H. P. & Farley, D. L. *Practical hematological diagnosis.*
Phil., Saunders, 1933, 562 p.
- Reckless, W. C. *Vice in Chicago.*
Chic., Univ. of Chic. Press, [1933], 314 p.
- Roger, H. *Les troubles du sommeil.*
Paris, Masson, 1932, 206 p.
- Romanis, W. H. C. & Mitchiner, P. H. *The science and practice of surgery.*
4. ed.
Phil., Lea, 1933, 2 v.
- Rothrock, J. L. *Ten years of obstetrics and gynecology in private practice.*
N. Y., Hoeber, 1933, 209 p.
- Rousseau-Decelle, L. & Raison, J. *Pathologie buccale, péri-buccale et d'origine buccale.*
Paris, Masson, 1933, 576 p.
- Sergent, E. E. J. *Les réveils de la tuberculose pulmonaire chez l'adulte.*
Paris, Masson, 1933, 225 p.
- Sex and internal secretions; a survey of recent research, edited by Edgar Allen.
Balt., Williams, 1932, 951 p.

Smith, J. L. Growth.

Edin., Oliver, 1932, 135 p.

Troisier, J. & Boquien, Y. La spirochétose méningée.

Paris, Masson, 1933, 187 p.

White, W. A. Crimes and criminals.

N. Y., Farrar, [1933], 276 p.

Würdemann, H. V. Injuries of the eye. 2. ed.

London, Kimpton, 1932, 900 p.

PROCEEDINGS OF ACADEMY MEETINGS

MARCH AND APRIL, 1933

MARCH

STATED MEETINGS

Thursday Evening, March 2, at 8:30 o'clock

I. EXECUTIVE SESSION

a. Reading of the Minutes

b. Election of Fellows and Honorary Fellows

c. Special Election—Committee on Library, Committee on Fellowship

II. PAPERS OF THE EVENING

a. The welfare resources of the city for the physician, Mr. Charles C. Burlingham, President, Welfare Council

b. Venereal disease control, Thomas Parran, Jr., State Commissioner of Health

Discussion, Edward L. Keyes, A. Benson Cannon, David J. Kaliski

Thursday Evening, March 16, at 8:30 o'clock

THE SIXTH HARVEY LECTURE

"Contributions of Chemistry to the Knowledge of Immune Processes", Michael Heidelberger, Associate Professor of Biological Chemistry, Columbia University.

This lecture took the place of the second Stated Meeting of the Academy for March.

SECTION MEETINGS

SECTION OF SURGERY

Friday Evening, March 3, at 8:30 o'clock

I. READING OF THE MINUTES

II. PRESENTATION OF CASES

a. Hemolytic streptococcus sepsis with multiple metastases. 3 year follow-up

- b. Thrombo-angiitis-obliterations. Complications and treatment. 1½ year follow-up
- c. Incision and drainage of subphrenic abscess following perforation of duodenal ulcer. Medical treatment of ulcer. 6 year follow-up, Beverley C. Smith

III. PAPERS OF THE EVENING

- a. The late physiological and clinical results of subtotal gastrectomy for gastric and duodenal ulcers, A. A. Berg

Discussion

- b. The peritoneal cavity—a misnomer, Kingsley Roberts
- Discussion, Frederic W. Bancroft, Charles Gordon Heyd

IV. GENERAL DISCUSSION

V. EXECUTIVE SESSION

Appointment of Nominating Committee

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, March 7, at 8:00 o'clock

The exhibition of patients was open to all physicians between the hours of 7:30 and 8:15 p m. After 8:15, only members were permitted to remain in the demonstration rooms.

I. READING OF THE MINUTES

II. PRESENTATION OF PATIENTS

- a. Patients from the Mount Sinai Clinic
- b. Miscellaneous patients

III. GENERAL DISCUSSION

IV. EXECUTIVE SESSION

Appointment of Nominating Committee

JOINT MEETING

SECTION OF NEUROLOGY AND PSYCHIATRY

AND

NEW YORK NEUROLOGICAL SOCIETY

Program arranged by the New York Neurological Society

Tuesday Evening, March 7, at 8:30 o'clock

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. Optic pseudoneuritis and pseudopapilledema, Robert K. Lambert, H. Weiss

Discussion, John N. Evans, Thomas H. Johnson

- b. Description of chronaxie apparatus, M. Walthard, Zurich, Switzerland

- c. Treatment of juvenile general paralysis, Howard W. Potter

- d. Treatment of general paresis with a combination of fever and tryparsamide, Harry C. Solomon, Boston (by invitation)

Discussion, Leon H. Cornwall, Henry A. Bunker, Jr. (by invitation)

III. EXECUTIVE SESSION

Section of Neurology and Psychiatry

Appointment of Nominating Committee

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Wednesday Evening, March 8, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 - a. Joseph Jacob Plenk, teacher and classifier of skin diseases, J. E. Lane, New Haven
 - b. Bernardino Ramazzini, founder of industrial hygiene (1633-1714). Herman Goodman
- III. GENERAL DISCUSSION
- IV. EXECUTIVE SESSION
 - Report of Nominating Committee

SECTION OF PEDIATRICS

Thursday Evening, March 9, at 8:30 o'clock

- I. EXECUTIVE SESSION
 - Appointment of Nominating Committee
- II. PAPERS OF THE EVENING
 - a. Studies in influenza, Perrin Long, Johns Hopkins University (by invitation)
 - b. Studies on the etiology and pathogenesis of whooping cough, Arnold R. Rich, Johns Hopkins University (by invitation)
- III. DISCUSSION, Alphonse R. Dochez, Yale Kneeland (by invitation)

SECTION OF OTOLARYNGOLOGY

Wednesday Evening, March 15, at 8:30 o'clock

(From the Otolaryngological Department—Kings County Hospital)

- I. INSTRUMENTS, ETC.
 - Improved irrigating bottles for antrum lavage, Mervin C. Myerson
- II. CASE REPORTS
 - a. Oral and pharyngeal manifestations of pellagra, Oscar Rodin (by invitation)
 - b. Pemphigus beginning in the larynx, Hyman Danish (by invitation)
 - c. Cavernous sinus thrombosis of otitic origin, Joseph G. Gilbert (by invitation)
 - d. Carbuncle of nose, ophthalmic vein phlebitis, operation for prevention of cavernous sinus thrombosis—recovery, E. Jefferson Browder (by invitation)
 - e. Bullet wound—external auditory canal, Sphenomaxillary fossa hemorrhage, Tracheotomy—ligation of common carotid artery—recovery, Herman Rubin (by invitation)
 - f. Peritonsillar abscess—retropharyngeal abscess—osteomyelitis of base of skull—meningitis, etc., Jos. S. Silverberg (by invitation)
 - g. Peritonsillar abscess and Ludwig's angina, Wilson J. Troup (by invitation)
- III. PAPER OF THE EVENING
 - Nutritional and biochemical phases of otolaryngology, Mervin C. Myerson
 - Discussion—Henry M. Feinblatt (by invitation)

IV. APPOINTMENT OF NOMINATING COMMITTEE

A clinical meeting was held at the Kings County Hospital, Brooklyn, at 2 p.m., on this date. The program was announced on a separate enclosure.

SECTION OF ORTHOPEDIC SURGERY
Friday Evening, March 17, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 - a. Diagnosis and treatment in two early cases of congenital dislocation of the hip, Charles H. Jaeger
 - b. Congenital dislocation of the hip. Treatment, with special reference to postoperative exercises, Dexter D. Ashley
- III. PAPERS OF THE EVENING
 - a. Spine studies in convalescent poliomyelitis, Harry Von Lackum (by invitation)
 - b. The early treatment of equinus in congenital club foot, Arthur Krida, John C. McCauley, Jr. (by invitation)
- IV. GENERAL DISCUSSION
- V. EXECUTIVE SESSION
 - Appointment of Nominating Committee

SECTION OF OPHTHALMOLOGY
Monday Evening, March 20, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. REPORTS OF CASES
 - a. A case of angioid streaks of the retina with pseudoxanthoma elasticum, David A. Newman
 - b. An unusual case of glassy network in the anterior chamber, Joseph Ziporkes
 - c. A case of iridodialysis with hypertension; surgical reattachment, Ben Witt Key
 - d. Calcified hyaline deposits (Drusen) on the optic disc, associated with pigment changes in the retina, Isadore Givner (by invitation)
 - e. Symblepharon and obliterated cul-de-sac corrected by buccal mucous membrane graft, Daniel B. Kirby
 - f. Report of 5 cases of glass in the eyeball. The Vogt method of localization, Harry A. Goalwin (by invitation)
 - g. A case of iridodialysis repaired by suturing, Edward N. DeWitt (by invitation)
- III. PAPERS OF THE EVENING
 - a. Necrotic sarcomas of the uvea. Lantern slide demonstration, Bernard Samuels
 - b. When and how physicians began prescribing spectacle-glasses, Harry Friedenwald, Baltimore (by invitation)
- IV. During the period 7 to 8:30 p.m. there was a demonstration of
 - a. Cases with late results in injuries of the eyes
 - b. The cases of Drs. Newman, Ziporkes, Kirby
 - c. An exhibit of old ophthalmological books by B. Samuels, I. Goldstein,

Percy Fridenberg (by invitation), P. C. Jameson (by invitation),
R. I. Lloyd, J. N. Evans, A. Knapp, Library of The New York
Academy of Medicine

V. EXECUTIVE SESSION

Appointment of Nominating Committee

SECTION OF MEDICINE

Tuesday Evening, March 21, at 8:30 o'clock

I. EXECUTIVE SESSION

- a. Reading of the Minutes
- b. Appointment of Nominating Committee

II. PAPERS OF THE EVENING

- a. The rôle of atelectasis in pulmonary tuberculosis, B. P. Stivelman
- b. The advantages of the physiological diet in the treatment of diabetes,
H. Rawle Geyelin
- c. Clinical and experimental studies of amyloid disease with special
reference to renal amyloidosis, S. Edward King

III. GENERAL DISCUSSION

J. Burns Amberson, Jr., Pol N. Coryllos, Nellis B. Foster, William
S. Ladd

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday Evening, March 28, at 8:30 o'clock

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. Birth injury of the occipital bone. Report of 32 cases, Frederick A.
Hemsath (by invitation)
Discussion, Leon T. LeWald, George W. Kosmak
- b. The Friedman pregnancy test. Report of 635 cases, Frank Spielman
(by invitation), Morris A. Goldberger, Abraham C. Posner, Grete
Stohr

- c. More rational methods in the prevention and control of eclampsia,
J. O. Arnold, Philadelphia (by invitation)

Discussion, George W. Kosmak, E. D. Friedman, Ernest F. Locke

III. GENERAL DISCUSSION

IV. EXECUTIVE SESSION

Appointment of Nominating Committee

AFFILIATED SOCIETIES

New York Meeting of the

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Under the auspices of

THE NEW YORK ACADEMY OF MEDICINE

Wednesday Evening, March 15, at 8:30 o'clock

- I. Induced ovulation in amphibians by injection of antuitrin-s, A. E.
Ogilvie (Introduced by A. J. Goldforb)
- II. Hypertrophy of adrenals in scurvy, A. J. Quick

- III. Relation of x-rays to lymphomatosis, J. Furth, R. R. Rathbone, H. R. Seibold
- IV. Effect of sodium chloride in treatment of Addison's disease, R. F. Loeb
- V. Biological action of strongly positive redox systems, E. H. Fishberg
- VI. A secondary bio-electric effect of potassium, L. R. Blinks
- VII. Temperature of circulating blood and other tissues with associated observations of capillary activity, I. S. Wright, H. J. Johnson (Introduced by H. O. Mosenthal)
- VIII. Reticulocytes of normal albino rats, C. J. Stucky, E. Brand
- IX. Dissociation of pneumococcus
A new colony variant of pneumococcus, M. H. Dawson (Introduced by A. R. Dochez)

NEW YORK ROENTGEN SOCIETY

In affiliation with The New York Academy of Medicine

Monday Evening, March 20, at 8:30 o'clock

- I. 8:30 to 9:00 p.m. Demonstration and discussion of interesting cases
- II. 9:00 p.m. Pyelographic studies of the renal tract, P. F. Butler, Boston (by invitation)

NEW YORK PATHOLOGICAL SOCIETY

In affiliation with The New York Academy of Medicine

Thursday Evening, March 23, at 8:30 o'clock

- I. Demonstration of pathological specimens
- II. The thymus in infectious diseases, Melvin C. Kimball (by invitation)
- III. An unusual case of faulty blood grouping due to autoagglutination, Perry J. Manheims, Endre K. Brunner (by invitation)
- IV. The so-called Brenner tumor of ovary (fibro-epithelioma mucinosum benignum), Alfred Plaut
- V. Malignant nephrosclerosis and periarteritis nodosa, Sadao Otani
- VI. Purulent thrombophlebitis of the pulmonary veins, W. Antopol, C. B. Rabin
- VII. Pyelophlebitis complicating gangrenous lung abscess, C. B. Rabin, S. Moolten

APRIL

STATED MEETINGS

Thursday Evening, April 6, at 8:30 o'clock

- I. EXECUTIVE SESSION
 - a. Reading of the Minutes
 - b. Resolutions on the death of George David Stewart
 - c. Election of Fellows
- II. THE HERMANN MICHAEL BIGGS MEMORIAL LECTURE
Diabetes mellitus; problems of present day treatment, Herman O. Mosenthal
Discussion, Public Health Problems, Charles Bolduan; Heredity and prevention, Elliott P. Joslin, Boston; Clinical phases, Nellis B. Foster; Recent trends in diabetes mortality, Louis I. Dublin

Thursday Evening, April 27, at 8:30 o'clock

THE SEVENTH HARVEY LECTURE

"Recent Biochemical Studies of Liver Function", J. C. Drummond, Professor of Physiology and Biochemistry, University College, London.

This lecture took the place of the second Stated Meeting of the Academy for April.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, April 4, at 8:00 o'clock

- I. READING OF THE MINUTES
- II. PRESENTATION OF PATIENTS
 - a. From the New York Hospital
 - b. From the Polyclinic Hospital
 - c. Miscellaneous Patients
- III. GENERAL DISCUSSION
- IV. EXECUTIVE SESSION
 - Nomination of Section Officers and one member of Advisory Committee

SECTION OF SURGERY

Friday Evening, April 7, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 - a. 1. Carcinoma of the stomach, persistent bleeding after two transfusions; subtotal gastrectomy. Aged 63. Followed two years
 - 2. Carcinoma of recto-sigmoid; Rankin resection; septic diarrhoea and prolonged hiccough. 41 years old. Followed eight months
 - 3. Compound comminuted fracture of the humerus; muscular spiral paralysis; osteomyelitis; non-union ten months; tibial bone graft; followed twenty-two months; cured; Irwin E. Siris
 - b. 1. Duodenal obstruction apparently due to pressure by superior mesenteric artery
 - 2. Successive intestinal obstruction caused by three different strangulated herniae
 - 3. Intestinal obstruction four times in same patient from different causes, Walter T. Stenson
- III. PAPER OF THE EVENING
 - Intrathoracic lipomas, George J. Heuer
- IV. DISCUSSION
- V. EXECUTIVE SESSION
 - Nomination of Section Officers and one member of Advisory Committee

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday Evening, April 11, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. CLINICAL PRESENTATIONS
 - a. Post-Graduate Hospital—Neurological Service
 - 1. Tumor of the mid-brain with changes of personality, Abraham M. Rabiner (by invitation)

2. Hemihyperalgesia of thalamic origin, George A. Blakeslee
3. Narcolepsy; marked symptomatic improvement following treatment, James L. Joughlin
- b. Bellevue Hospital—Neurological Service
 1. Familial nuclear agenesis, Isadore Neistadt (by invitation), Harold Block (by invitation)
 2. Recurrent ophthalmoplegia, E. D. Friedman
 3. Cerebral meningioma simulating spinal cord tumor, Foster Kennedy
- c. Mt. Sinai Hospital—Neurological Service
 1. Luetic meningoencephalitis, simulating brain tumor, Herman Selinsky
 2. Meningo-encephaloradiculitis, Morris Grossman
- d. Neurological Institute
 1. Paget's Disease, Leon A. Salmon (by invitation)
 2. Clinical presentation of basophilic disease of the pituitary, Irving H. Pardee
 3. Spinal anesthesia; nervous system sequelae. A case in point, George H. Hyslop
- e. Montefiore Hospital—Neurological Service
 1. Hypophyseal neoplasm with hypothermia, N. E. Selby
 2. Cerebellar syndrome associated with chronic alcoholism, W. Needles (by invitation)

III. DISCUSSION

IV. EXECUTIVE SESSION

Nominations for Officers of Section and 2 members of Advisory Committee, one member for 3 years, to fill unexpired term of Michael Osnato, deceased, and one member for five years

SECTION OF PEDIATRICS

Thursday Evening, April 13, at 8:30 o'clock

I. EXECUTIVE SESSION

Nomination of Section Officers and one member of Advisory Committee

II. PAPERS OF THE EVENING

The variability in weight of the thymus and its component parts in health and disease, Edith Boyd, University of Minnesota (by invitation)

- ### III. DISCUSSION, Henry Jaffe (by invitation), Aubrey B. MacLean, Max A. Goldzieher (by invitation), Rustin McIntosh, Murray H. Bass.

SECTION OF OPHTHALMOLOGY

Monday Evening, April 17, at 8:30 o'clock

I. READING OF THE MINUTES

II. SCIENTIFIC SESSION

A case of retinitis pigmentosa without pigment, Olga Sitchevska

III. PAPERS OF THE EVENING

- a. Iris processes, Algernon B. Reese
- b. Physiology and embryology of pigment (Melanin) formation, Samuel Peck

- c. Pathology of the pigmentary lesions in the fundus, David Wexler
- d. Pigmentation of the fundus, photographic demonstration, Arthur Bedell, Albany
- e. The significance of blood cholesterol in the dietary management of diabetes with special reference to eye complications, Henry Geyelin

IV. Demonstration before the meeting

- a. Slit-lamp cases
- b. Methods of preparing macroscopic eye specimens, Mr. E. B. Burchell

V. EXECUTIVE SESSION

Nomination of Section Officers and one member of Advisory Committee

At the May meeting there was an exhibit of old instruments, ophthalmoscopes, eye spectacles, etc.

SECTION OF MEDICINE

The April meeting of the Section was not held on the regular date (April 18) as the program of the Stated Meeting of April 6 was arranged in cooperation with the Section.

At the Stated Meeting of April 6 the nominations for new officers of the Section and one member of the Advisory Committee were presented.

SECTION OF GENITO-URINARY SURGERY

Wednesday Evening, April 19, at 8:30 o'clock

I. READING OF THE MINUTES

II. CASE PRESENTATION

Transurethral removal of prostatic stones with simultaneous revision of prostate, Leo Michel

III. Historical survey of endoscopic prostatic resection, Robert Gutierrez

IV. PAPER OF THE EVENING

Transurethral prostatic resection, Nathaniel G. Alcock, University of Iowa (by invitation)

Discussion, Henry G. Bugbee, Clyde W. Collings, Edward L. Keyes, Thomas J. Kirwin, Joseph F. McCarthy, J. Sturdivant Read

V. GENERAL DISCUSSION

VI. EXECUTIVE SESSION

Nomination of Section Officers and one member of Advisory Committee

JOINT MEETING

SECTION OF OTOLARYNGOLOGY

AND

SECTION OF OTOLARYNGOLOGY

OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF PHILADELPHIA

Wednesday Evening, April 19, at 8:30 o'clock

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. The evolution of the mastoid tip cell as a cell system separate from the remainder of the mastoid cells and its significance, Ralph Almour
- Discussion, Oscar V. Batson (by invitation)
- b. Functional ear examination in patients with Meniere's syndrome, Page Northington

Discussion, George M Coates (by invitation)

c. Diagnostic and therapeutic use of the roentgen ray in laryngeal neoplasms, I. Seth Hirsch

Discussion, Fielding O Lewis (by invitation)

d Neutropenia, Paul Reznikoff

Discussion, Karl M. Houser (by invitation)

III EXECUTIVE SESSION—Section of Otolaryngology

Nomination of Section Officers and one member of Advisory Committee

The members of the Section tendered a dinner to the members of the Section of the College of Physicians and Surgeons at the Academy at 6.45 p m

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, April 21, at 8:30 o'clock

I READING OF THE MINUTES

II. PAPER OF THE EVENING

Calcium and phosphorus metabolism and its relation to the parathyroid glands, Edward L Compere, University of Chicago (by invitation)

III. DISCUSSION, Henry L Jaffe (by invitation), William Barclay Parsons, Jr, Aaron Bodansky (by invitation), John F Landon, John Guttman

IV. EXECUTIVE SESSION

Nomination of Section Officers and one member of Advisory Committee

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday Evening, April 25, at 8:30 o'clock

Program from the Women's Clinic of the New York Hospital

I READING OF THE MINUTES

II PAPERS OF THE EVENING

a A case of spondylolisthesis, Hervey C Williamson

b Anemia of pregnancy, Lucius A Wing

c Subacute bacterial endocarditis in pregnancy, William G Terwilliger (by invitation)

d Gas bacillus infection, intrapartum and postpartum, Andrew A Marchetti (by invitation)

e Bacteriological findings in the uterus during labor and the early puerperium, R Gordon Douglas (by invitation), Henrietta S Rhee (by invitation)

f A pathological study of 500 abnormal placentae, Herbert F Traut (by invitation), Alberta Kuder (by invitation)

III DISCUSSION

IV EXECUTIVE SESSION

Nomination of Section Officers and one member of Advisory Committee

AFFILIATED SOCIETIES

NEW YORK ROENTGEN SOCIETY

In affiliation with The New York Academy of Medicine

Monday Evening, April 17, at 8:30 o'clock

I 8:30 to 9.00 p m, Demonstration and discussion of interesting cases

- II. 9:00 p.m. "The value of a multiperforated lead screen in deep x-ray therapy", F. Liberson, U. S. Public Health Service (by invitation)
- III. GENERAL DISCUSSION
- IV. EXECUTIVE SESSION

Special Meeting of the
NEW YORK ROENTGEN SOCIETY
Thursday Evening, April 27

- I. 8:30 to 9:00 p.m. Demonstration and discussion of interesting cases
- II. 9:00 p.m. Bronchography in pulmonary tuberculosis (from the Hudson County Tuberculosis Hospital and Sanitarium)
- a. Bronchography an essential and safe adjunct in the study of pulmonary tuberculosis, J. E. Murphy (by invitation)
- b. Bronchography in relation to the pathology of pulmonary tuberculosis, B. P. Potter (by invitation)
- c. Bronchography in the interpretation of the roentgen ray film of chronic pulmonary tuberculosis, with special reference to surgical indications, H. Neuhof (by invitation), Discussion, James B. Amberson, Jr.
- III. GENERAL DISCUSSION
John R. Carty, David E. Ehrlich

NEW YORK MEETING
OF THE
SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE
Under the auspices of The New York Academy of Medicine
Wednesday Evening, April 19, at 8:15 o'clock

- I. Experimental transmission of rabbit pox by a filterable virus, L. Pearce, P. D. Rosahn, C. K. Hu
- II. Cultivation of vesicular stomatitis virus, H. R. Cox, J. P. Syverton, P. K. Olitsky
- III. A pandemic of rabbit pox, H. S. N. Greene (Introduced by L. Pearce)
- IV. Effect of tetanus toxoid in producing active immunity against tetanus, D. H. Bergey and S. Etris
- V. Exophthalmos in thyroidectomized guinea pigs by injection of thyrotropic substance of anterior pituitary, and the mechanism involved, D. Marine and S. H. Rosen
- VI. Excretion of estrin in acne, T. Rosenthal and R. Kurzrok (Introduced by J. G. Hopkins)
- VII. Comparison of concentration of glucose in the stomach and intestine after intragastric administration, I. S. Ravdin, C. G. Johnston, P. J. Morrison (Introduced by F. S. Goldschmidt)
- This was the annual business meeting, at which reports of officers were read.

NEW YORK PATHOLOGICAL SOCIETY
In affiliation with The New York Academy of Medicine
Thursday Evening, April 27, at 8:30 o'clock

- I. Demonstration of pathological specimens

- II. Carcinomatous thrombo-endarteritis of the lungs, E. B. Greenspan (by invitation)
 - III. Aortic stenosis: a differential study between calcified bicuspid valves of congenital and inflammatory origin, Max Trubek, Louis F. Bishop, Jr.
 - IV. The use, significance, and interpretation of silver impregnation in pathology, Nathan Chandler Foot
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HONORARY FELLOWS AND FELLOWS ELECTED

HONORARY FELLOWS ELECTED MARCH 2, 1933

- Charles Achard, Professor of Clinical Medicine, Faculté de Médecine, Paris, Rue Galilée, 37, Paris
- Roberto Alessandri, Professor of Clinical Surgery, University of Rome, 31 Via Giovanni Battista, Morgagni, Rome
- Sir Charles (Alfred) Ballance, K.C.M.G., C.B., M.V.O., LL.D., M.S., F.R.C.S., Westfield, Hatfield, Herts
- Frederick Grant Banting, M.C., M.D., F.R.C.S., D.Sc., LL.D., Professor of Medical Research, University of Toronto, 46 Bedford Street, Toronto
- Sir Henry Hallett Dale, C.B.E., M.A., M.D., F.R.S., F.R.C.P., Director of the National Institute for Medical Research, Mount Vernon House, N.W. 3, London
- Otfried Foerster, Professor of Psychiatry and Neurology, Schlesische Friedrich-Wilhelms-Universität, Tiergartenstrasse, 83-85, Breslau
- Carl G. Forssell, Professor of Radiology, Karolinska Mediko Kirurgiska Institutet, Stockholm
- James Bryan Herrick, M.D., Emeritus Professor of Medicine, Rush Medical College, 242 East Walton Place, Chicago, Ill.
- Cornelius Ubbo Ariens Kappers, Professor of Comparative Anatomy of the Nervous System, University of Amsterdam, Oranje-Nassaulaan, 73, Amsterdam
- George Richards Minot, M.D., Professor of Medicine, Harvard, 71 Sears Road, Brookline, Mass.
- William Gibson Spiller, M.D., Professor of Neurology, University of Pennsylvania, 4409 Pine Street, Philadelphia, Pa.
- Alfred Vogt, Professor of Ophthalmology, University of Zurich, Ramistrasse, 73, Zurich
- Frederick Karel Wenckebach, Professor of Medical Pathology and Therapy, University of Vienna, Kobenzlgasse, 49-a, Vienna

FELLOWS ELECTED MARCH 2, 1933

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Julius A. Miller.....	35½ West 84 Street
Camille Kereszturi.....	1118 Park Avenue
Henry Lawrence Hall.....	19 Bradford Avenue, West Orange
Harry B. Epstein.....	31 Lincoln Park, Newark
Abram Joseph Abeloff.....	111½ Madison Avenue
James S. Edlin.....	30 East 40 Street
George J. Heuer.....	525 East 68 Street
Eugene Lindsay Opie.....	1300 York Avenue
Max David Mayer.....	1150 Fifth Avenue
Norman L. Higinbotham.....	114 East 5½ Street
Francis A. Sutherland.....	39 Fifth Avenue
Benjamin Friedman.....	771 West End Avenue
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Arthur Goetsch.....	112 Joralemon Street, Brooklyn
Gerald Reid Jameison.....	Bloomingdale Hospital, White Plains
George S. Sprague.....	Bloomingdale Hospital, White Plains

And for Associate Fellowship

Helen Flanders Dunbar, Ph.D.....	205 East 78 Street
Adolph Berger, D.D.S.....	10 East 74 Street

FELLOWS ELECTED APRIL 6, 1933

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Gilbert J. Dalkdorf.....	Grasslands Hospital, Valhalla
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Thomas Norris Graham.....	614 Park Avenue
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Edif C. Hanssen.....	65 East 55 Street
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Mathilde Loth.....	55 East 66 Street
Eugene Henry Moyle.....	1088 Park Avenue
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Jesse Alfred Tolmach.....	30 West 39 Street
John Russell Twiss.....	65 East 55 Street

DEATH OF GEORGE DAVID STEWART

*Resolutions adopted at the meeting of the Council held
March 22, 1933*

The New York Academy of Medicine records with sincere feeling its deep sense of sorrow and loss in the death of its greatly beloved Fellow, George David Stewart, which took place at his home on March ninth.

Dr. Stewart was elected to Fellowship in 1895 and for nearly forty years devoted much of his effort and abundant energy to furthering the interests of the Academy. In 1916, he became Vice-President and three years later was elected to the Presidency. He received the unusual honor of being asked to hold this office for three successive terms, until 1925, as the Academy refused to relieve him from leadership at that critical time.

It was during this period that the long-considered plans for the new Academy building were brought to completion and to no one belongs greater credit for this accomplishment than to George Stewart. His broad vision made it easy for him to grasp the great opportunity for unusual service which lay before us, were we provided with adequate facilities. His power of persuasion was a chief factor in convincing our many benefactors that we should be accorded their support. His active interest in, and work for, the Academy were not lessened by his retirement from the Presidency. He continued as a Trustee until the time of his death and devoted much thought to the work of the Committee on Public Health Relations of which he remained a member until 1929.

With his magnetic personality, his rare gift of humorous expression and his wisdom acquired through wide experience, he was a dominant figure among his fellows.

Dr. Stewart was unusually well endowed by nature to become such a figure. Untiring energy applied to the enlargement of this endowment made of him a man of great insight, rare force, fine tact and a lover of culture and the

beautiful. His leadership was kindly and his followers found it easy to become his disciples.

It is known that he was influenced by a strong religious feeling and he brought to every decision a sense of fairness which made his counsel much sought. As a surgeon and teacher he has left the world his debtor. His writings testify to the breadth of his training and he exerted great influence in keeping the role of general surgery equally broad.

In his death we have lost a forceful leader and teacher, a wise counsellor, a kindly man and a dear friend. The Academy desires to express its great appreciation of these qualities and enter upon the Minutes this testimony to the memory of one we can ill afford to lose.

DEATHS OF FELLOWS OF THE ACADEMY

NATHAN STURGES JARVIS, M.D., Hotel Plaza, New York City; graduated in medicine from Bellevue Hospital Medical College, New York City, in 1884; elected a Fellow of the Academy May 4, 1899; died, April 20, 1933. Dr. Jarvis was one of the founders of the Society of Alumni of Bellevue Hospital.

EMMANUEL JONESOFF, M.D., 161 West 54 Street, New York City; graduated in medicine from the University of Paris, France, in 1900; elected a Fellow of the Academy May 6, 1909; died, April 4, 1933. Dr. Jonesoff was a Fellow of the American Medical Association, Assistant Physician to French Hospital, Immunologist to French Dispensary, and a member of the County and State Medical Societies.

GEORGE HOOPER MALLETT, M.D., Hendersonville, North Carolina; graduated in medicine from the University of Virginia, in 1885; elected a Fellow of the Academy December 7, 1905; died, March 22, 1933. Dr. Mallett was a Fellow of the American Medical Association and a Fellow of the American College of Surgeons. He was a former President of the Alumni of the Woman's Hospital, a former President of the Alumni of the Associated City Hospital, consultant gynecologist to the Memorial Hospital, and a member of the New York Obstetrical Society.

JOHN MCCOY, M.D., 730 Fifth Avenue, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1895; elected a Fellow of the Academy May 5, 1904; died, March 16, 1933.

Dr. McCoy was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Academy of Ophthalmology and Otolaryngology, a member of the American Laryngological, Rhinological and Otolological Society, a member of the County and State Medical Societies, and a member of the New York Otological Society. He was Aural Surgeon to the New York Eye and Ear Infirmary, Professor of Otology in the Polyclinic Medical School, Chief Bronchoscopist to Midtown Hospital, Consulting Otolaryngologist to the French Hospital, and Consulting Otologist to the Neurological Institute.

GRACE PECKHAM-MURRAY, M.D., Putnam, Connecticut; graduated in medicine from Woman's Medical College of New York Infirmary, New York, in 1882; elected a Fellow of the Academy February 4, 1886; died, April 8, 1933. Dr. Peckham-Murray was Adjunct Professor of Women's Diseases at the Post-Graduate School and Hospital from 1902 to 1911. She invented the anesthesimeter, an instrument for regulating the administration of anesthesia.

WILLIAM HENRY PORTER, M.D., 245 Fifth Avenue, New York City; graduated in medicine from the College of Physicians and Surgeons, New York, in 1877; elected a Fellow of the Academy January 15, 1891; died, March 27, 1933. Dr. Porter was a Fellow of the American Medical Association, the American Urological Association, the American Therapeutic Society, a member of the New York Neurological Association, the New York Pathological Society, and the State Medical Society. He was Professor of Medicine in the New York Post-Graduate Medical School from 1887 to 1912, also Professor Emeritus of Pathology and Internal Medicine of the same institution.

ALPHONSO DAVID ROCKWELL, M.D., Flushing, New York; graduated in medicine from Bellevue Hospital Medical College, New York City, in 1864; elected a Fellow of the Academy January 7, 1869; died, April 12, 1933. Dr. Rockwell was Professor of Electrotherapeutics to New York Post-Graduate School of Medicine. He was former President of the American Electrotherapeutic Association and a member of the American Academy of Medicine.

WILLIAM GRAY SCHAUFFLER, M.D., Princeton, N. J.; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1889; elected a Fellow of the Academy May 4, 1893; died, April 30, 1933. Dr. Schauffler was Professor in the medical department of the American University at Beirut, Syria, from 1891 to 1896. In 1917 he was President of the New Jersey State Medical Society.

CORRECTIONS

In the note published in the March issue of the Bulletin, entitled "The Cost of German Medical Literature," page 159, concerning the excessive cost of German medical books, recommendation was made to send complaint to the Akademische Verlagsgesellschaft in Leipzig. This was a mistake and should have read, Börsenverein der Deutschen Buchhändler, Leipzig.

JANET DOE, *Assistant Librarian*

In the April, 1933 number of the Bulletin, which comprises the Annual Report for the year 1932, a mistake was made on page 265, Officers of Sections and Affiliated Societies, January to May, under *Section of Otolaryngology*. The officers as printed are incorrect and should be "Charles J. Imperatori, Chairman and David H. Jones, Secretary".

DONATIONS TO THE LIBRARY FUNDS

Donations and bequests are solicited by The New York Academy of Medicine for the maintenance and expansion of the Library.

A donation or bequest of \$5,000 or more will provide for a special library fund, the income of which may be used for the general purposes of the Library or restricted to the purchase of books and periodicals, as the donor or testator may indicate.

FORM OF BEQUESTS

The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto "The New York Academy of Medicine" of the City of New York, State of New York, a corporation duly incorporated by the Legislature of the State of New York by an act entitled, "An Act to Incorporate The New York Academy of Medicine," passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 25, 1924, . . .

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of The

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Among the speakers who will participate in the Graduate Fortnight are included Drs. Eugene F. DuBois, Harold E. Himwich, Walter W. Palmer, Frank H. Lahey, Donald Dexter Van Slyke, Joseph C. Aub, Ashley Weech, Dana W. Atchley, Erwin Brand, Emanuel Libman, Rollin T. Woodyatt, Priscilla White, Nellis B. Foster, Herman O. Mosenthal, William S. Ladd, H. Rawle Geyelin, Albert A. Epstein, John P. Peters, Henry C. Sherman, Samuel W. Clausen, Alfred F. Hess, Lafayette Mendel, Wilder G. Penfield, Oscar M. Schloss, Henry L. Jaffe and Charles F. Bodecker.

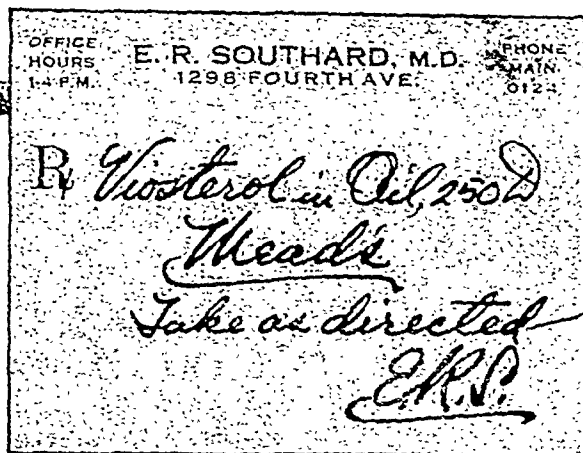
An exhibit will be shown in connection with the Fortnight, material having been collected from many institutions in Metropolitan New York. The various aspects of metabolic disorders will be covered in this exhibition including the history of metabolism; dietary constituents and their derivatives; drug and other therapeutic measures; general and special pathological metabolism; and laboratory methods and procedures.

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VOL. IX, No. 4

BULLETIN
OF
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ACADEMY OF MEDICINE

APRIL, 1933



INCORPORATED 1851

ANNUAL REPORT, 1932



PUBLISHED MONTHLY BY

THE NEW YORK ACADEMY OF MEDICINE

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By Neuton S. Stern, A.B., M.D.

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BULLETIN
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PUBLISHED MONTHLY BY

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*A complete list of former Academy officers and committees was published in the Annual Report for 1928.

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HELEN SAYRE, *Head of Bibliographical Department*

GERTRUDE ANNAN, *In charge of Rare Book and History Room*

STAFF OF COMMITTEES

Committee on Public Health Relations

E. H. L. CORWIN, *Executive Secretary*

OLGA A. KRUESI, *Secretary*

ALICE E. PAULSEN, *Executive Assistant*

Committee on Medical Education

FREDERICK P. REYNOLDS, *Medical Secretary*

GRACE JOHNSON, *Secretary*

Committee on Press Relations

IAGO GALDSTON, *Executive Secretary*

HENRIETTA SIMMS, *Secretary*

CONTENTS

ANNUAL REPORT FOR THE YEAR 1932

Report of the Council.....	163
Report of the Board of Trustees.....	167
Allocation of Fellows' Dues 1933.....	172
Abstract of Treasurer's Report.....	172
Statement of Income and Expense.....	174
Statement of Special Funds.....	175
Auditor's Certificate	177
Report of the Committee on Admission	178
Report of the Committee on Library	178
Report of the Committee on Public Health Relations	191
Report of the Committee on Medical Education	205
Report of the Committee on Sections	211
Report of the Committee on Medical Jurisprudence	212
Report of the Medical Information Bureau	213
Report of Offices and Meetings at the Academy	216
Obituary	218
Fellows and Associate Fellows Elected in 1932	219
<i>Complete Academy Fellowship, 1932:</i>	
Resident Fellows	221
Non-Resident Fellows	248
Associate Fellows	256
Recapitulation	258
Honorary Fellows	258
Corresponding Fellows	260
Benefactors	260
<i>Notes:</i>	
Dates of Academy Meetings	262
Affiliated Societies	262
Hosack Bed for Sick and Needy Physicians	262
Donations to the Library Funds	263
Form of Bequests	263
Committees of the Council and Trustees	264
Officers of Sections and Affiliated Societies	265

STANDING COMMITTEES OF THE ACADEMY

1932

COMMITTEE ON ADMISSION

To SERVE UNTIL DECEMBER 31, 1932

ALFRED T. OSGOOD, *Chairman*
HARRY M. IMBODEN

GEORGE M. MACKEE
EMANUEL D. FRIEDMAN

To SERVE UNTIL DECEMBER 31, 1933

WARD I. MACNEAL
HOWARD MASON

MERVIN C. MYERSON
EDGAR STILLMAN

To SERVE UNTIL DECEMBER 31, 1934

CONSTANTINE J. MACGUIRE, JR.
ARTHUR H. TERRY, JR.

WILLIAM E. STUDDIFORD, JR.
HAROLD T. HYMAN

COMMITTEE ON LIBRARY

ALFRED F. HESS, *Chairman*

ALFRED E. COHN
J. RAMSAY HUNT

WILLIAM S. THOMAS
SAMUEL W. LAMBERT

COMMITTEE ON PUBLIC HEALTH RELATIONS

*JAMES ALEN. MILLER, *Chairman*

GEORGE C. ANDREWS
*HARRY ARANOW
*GEORGE BAEHR
CONRAD BERENS
CARL BOETTIGER
RALPH H. BOOTS
WESLEY C. BOWERS
HENRY W. CAVE
*CHARLES LOONIS DANA
ROBERT L. DICKINSON
HAYEN EMERSON

SEWARD ERDMAN
*LEWIS FOX FRISSELL
S. S. GOLDWATER
MALCOLM GOODRIDGE
WILLIAM KLEIN
GEORGE W. KOSMAK
*ADRIAN V. S. LAMBERT
*SAMUEL W. LAMBERT
RUSTIN MCINTOSH
HARVEY B. MATTHEWS
JAMES I. RUSSELL

*BERNARD SACHS
*FREDERIC E. SONDERV
*HOWARD C. TAYLOR
GRANT THORNBURN
*NATHAN B. VAN ETTEN
PHILIP VAN INGEN
WILBUR WARD
CASSIUS H. WATSON
*HERBERT B. WILCOX
I. OGDEN WOODRUFF
E. H. L. CORWIN, Ph.D.,
Executive Secretary

COMMITTEE ON MEDICAL EDUCATION

*HARLOW BROOKS, *Chairman*

FREDERIC W. BANCROFT
F. WARNER BISHOP
*ARTHUR F. CHACE
*EDWARD CUSSLER
*CARL EGGERS
CHARLES A. ELSBERG
JAMES EWING
†ROLFE FLOYD
*NELLIS B. FOSTER
THOMAS J. HARRIS

*EDWARD H. HUME
†LEO KESSEL
ARNOLD KNAPP
*SAMUEL J. KOPETZKY
WILLIAM S. LADD
*EMANUEL LIBMAN
*JOSEPH F. MCCARTHY
HARRISON S. MARTLAND
*JOHN J. MOORHEAD
*BERNARD S. OPPENHEIMER

†MICHAEL OSNATO
WALTER W. PALMER
MARCUS A. ROTHSCHILD
*HOWARD F. SHATTUCK
ALAN DEFOREST SMITH
*GEORGE GRAY WARD
WEBB W. WEAVER
ORRIN SAGE WIGHTMAN
JOHN WICKOFF
FREDERICK P. REYNOLDS,
Medical Secretary

COMMITTEE ON SECTIONS

FREDERICK TILNEY, *Chairman* and the *Chairman* of each Section.

*Executive Committee
†Deceased.

BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

VOL. IX

APRIL, 1933

No. 4

ANNUAL REPORT FOR THE YEAR 1932*

REPORT OF THE COUNCIL

The most important action taken by the Council during the past year was the unanimous agreement to change the type of membership of the Academy. The Constitution and By-Laws have been amended and submitted to the Academy with the expectation that they will be adopted early in 1933. The changes proposed provide that a candidate for election to the Academy shall be elected as a Member and that the present qualifications for Fellowship shall apply to Membership, and that Members may subsequently be elected to Fellowship provided they have met the qualifications required for a higher medical degree in universities or have met additional requirements in general or special fields that would qualify them to be specialists.

It has been recognized for many years that there has been too great a development of specialism in medicine and that many specialists have not had the advantages of graduate university work or special opportunities for fitting themselves to practice in a limited field of medicine. The step proposed by the Academy should result ultimately in a higher standard, and a broader and more intensive training for specialists.

The changes in the Constitution and By-Laws, with their resultant beneficial effect upon the practice of medicine, have been made possible by the very thorough study that

*The following reports were presented at the Annual Meeting of the Academy, January 5, 1933.

has been given to the subject by the Committee on Medical Education. In carrying out this project, the Committee has also worked intensively upon the subject of the educational facilities and procedures in the various hospitals for the training of their interns and residents. It has collected much material bearing on this subject and is now in a position to go forward with this important matter. The program has broadened itself to take in the whole field of the continued education of the doctor. Since, of necessity, this is dependent upon undergraduate education, it would seem wise that the Academy do its best to draft the aid of the medical colleges in this general undertaking. We are now in a position to actively forward the work of the Board for Advanced Medical Education which was created two years ago and is now made up of representatives from thirty of our important hospitals.

Probably these two general activities embody the most important work of the very progressive Committee on Medical Education.

It is necessary also to speak with enthusiasm of the development of the Graduate Fortnight; the Friday afternoon lectures; the improvements made in the Section and the Stated Meeting programs. All of these have occupied much time of the Committee as a whole and its various subcommittees. A more detailed description of all of them will be found in the report of this Committee but it is appropriate to mention especially the Graduate Fortnight, held in October of this year. It was more largely attended and more satisfactory in many ways than any which has been held up to the present time. It attracted favorable attention throughout the country, and has now become a recognized educational undertaking of the greatest value. Although it is not a graduate course, it undoubtedly is a stimulus to many physicians to renew their activities in a special field and to others to familiarize themselves with another subject by additional study.

The library has also served as an aid in continued medical education and its influence has constantly widened.

It is noted with satisfaction that there has been a steady increase in the number of readers during the past six years. There were 26,093 readers in 1927, which was 7,000 less than the last year in the old building. The number has steadily increased, however, and in 1932 there were 47,042 readers. The increasing activity of the library is described fully in the annual report of the library.

Through the efforts of Dr. Samuel W. Lambert and Mr. Leonard Mackall, it was learned that the original wood-blocks used for the publication of the 1543 and 1555 editions of Vesalius were stored in the library of the University of Munich. Dr. Lambert was convinced of the importance of republishing an edition of Vesalius and using the same wood-blocks for illustrating the volume. Arrangements were finally made with the University of Munich and the Bremer Presse in Munich for the publication of this important work. In order to publish this work and others, it was essential that a substantial fund be secured and through Dr. Lambert's efforts a donation of \$5,000. was contributed by Mr. Robert Sterling Clark and an additional contribution of \$5,000. has been promised by Mr. Carll Tucker.

On several occasions during the past decade, an effort has been made on the part of some Fellows of the Academy to secure the creation of a new Section in a special field. The attitude of the Council in general is opposed to the development of new specialties and no new Section has been created. On the other hand, the Council welcomed the amalgamation of the former Sections on Laryngology and Otology a year ago.

During the past year a very strong effort was made to create a new Section on Psychiatry and after a study of the question by a special committee of the Council and careful consideration by the Council itself, it was felt that the present Section on Neurology and Psychiatry should continue for at least another year.

The Public Health Relations Committee has continued its activities and published a very complete statement on

Veterans' Legislation and Its Relation to Health which has largely influenced public sentiment against the continued expansion of federal government expenditure in behalf of veterans.

The National Committee on Nomenclature has completed its labors and has issued a new nomenclature of disease which has been accepted by most of the special national societies. This Committee's activity was launched by the Committee on Public Health Relations several years ago.

The study on Maternal Mortality which is being carried on under the direction of the Committee on Public Health Relations is nearing completion and will undoubtedly throw a great deal of light on the whole subject and indicate methods for the reduction of maternal mortality.

At the request of the Commissioner of Health, a study is being made of the possibilities of preventing diabetes.

Several members of the Committee on Public Health Relations have devoted a great deal of time and effort to the preparation of the report on Workmen's Compensation while serving as members of the Governor's Commission to study this subject.

During the year, 40 Fellows and 4 Honorary Fellows died; 16 Fellows who had been members for thirty years or more were placed on the exempt list; 14 resignations were accepted; 5 were dropped from Fellowship for failure to pay their dues; 117 candidates were elected to Fellowship and 10 to Associate Fellowship.

The Council received notice of the bequest of the late Dr. Louis Livingston Seaman and agreed to accept a fund, the income of which is to be used for the promotion of original investigation in bacteriology and sanitary science. It is not known as yet what the total amount of this fund will be.

The Committee on Professional Standards has considered a number of minor matters, inaugurated a study on fee splitting and has investigated a number of complaints during the year. In every instance but one the Fellow

investigated has been completely exonerated. It was felt that the activities of one Fellow were contrary to the best interests of the medical profession and upon the recommendation of the Committee, the Council sought and obtained his resignation.

The Gibbs Prize Fund Committee awarded the income of the fund again to Dr. William deB. MacNider of Chapel Hill, North Carolina, whose studies had not been completed.

The Council desires to express its appreciation to all the Fellows of the Academy who have been loyal and conscientious in their service to the Academy, in promoting its activities, and who by their efforts have aided in the development of better practitioners which in turn means better medical service for the community.

JOHN A. HARTWELL, *President.*

REPORT OF THE BOARD OF TRUSTEES

In December 1931, the Trustees adopted a budget for the year 1932 of \$259,724.72 and estimated that for the year 1932 the total income available for the general activities of the Academy would amount to \$260,100. At the March meeting of the Board it was reported that if the expenses continued at their present rate, the Academy would face a deficit of over \$5,000 by the end of the year. This was due to a falling off of the income from many sources. At a later meeting of the Trustees recommendations were made and subsequently adopted that every effort be made to economize, that if any vacancy occurred in the staff it was not to be filled unless deemed absolutely necessary, and that the higher salaries be cut 8 per cent and other salaries 5 per cent down to \$1,500. The income for the year was approximately \$250,000 and the Academy completed the year without a deficit. Details will be found in the report of the Treasurer. This satisfactory conclusion has been possible only as a result of the efforts and cooperation of heads of the departments and the Academy staff.

At the close of the year 1931 there had been collected or pledged for endowment and for the new addition to the building, \$800,407.52, of which \$538,970 were in pledges. These pledges are being paid off as they fall due. The Trustees have deeply appreciated the loyal support and generosity of the large number of Fellows of the Academy who have contributed toward this recent building fund.

In the early spring of 1932 excavation was begun for the foundation of the addition. The contractors met with unusual difficulties in the digging of the foundation and were delayed also by an unfortunate strike. It had been expected that the building would be completed before the end of the year but due to these delays it will not be finished until late in the spring of 1933. This addition to our building will provide a rare book room, seminar room, library offices, three floors for museum material, much needed office space for medical activities carried on by various agencies and ample space for committee work.

The Trustees have created a new fund entitled "The Louis Livingston Seaman Fund," the income of which is to be used for the promotion of research work in bacteriology and sanitary science. It is not known how much this fund will amount to, but the Trustees have received up to the present time the sum of \$4,479. from the Estate of the late Dr. Louis L. Seaman.

The three buildings owned by the Academy, Nos. 10, 12 and 14 East 103rd Street, have been satisfactorily operated during the past year and bring a small profit to the Academy on the original investment. The Trustees feel that the purchase of this property was a wise action in order to protect the present property and to insure additional space if needed. That the property more than carries itself in these times is a source of great satisfaction.

The Trustees adopted at their meeting of December a budget for the year 1933 of \$236,296.44 and it is expected that the income for the year will be slightly in excess of this figure.

With the increased expenses that will occur after our installation in the new building, it will be very difficult to keep within the budget and it is hoped that not only the Academy staff but also the Fellows of the Academy will recognize the difficulties which will have to be met to live within a budget which is \$60,000 less than that of two years ago.

BUDGET 1933

Income Estimated

Investments	\$125,000.00
Dues—Members	69,000.00
“ Library	1,390.00
Contributions	12,500.00
Room Assessments	15,000.00
Bibliography and Photostat	4,800.00
Estate—Witthaus	4,500.00
Graduate Fortnight	3,000.00
Academy Bulletin	2,000.00
Surgical Bulletin	1,000.00
Bank Interest	460.00
Totals	<u>\$238,650.00</u>

Expenses Estimated

Administration—Salaries	\$ 27,026.00
“ —Expenses	5,145.00
Corporation Expense	11,729.00
Building Operation—Salaries	28,395.75
“ “ —Expenses	14,330.00
Library—Salaries	55,732.85
“ —Expenses	27,553.24
Medical Education—Salaries	13,005.60
“ “ —Expenses	13,400.00
Sections—Salaries	5,705.00
“ —Expenses	12,195.00
Public Health—Salaries	14,029.00
“ “ —Expenses	750.00
Press Relations—Salaries	6,674.80
“ “ —Expenses	625.20
Totals	<u>\$236,296.44</u>

EUGENE H. POOL, *Chairman.*

The following gifts and bequests have been received during the year:

GIFTS AND BEQUESTS

Endowment

<i>Purpose</i>	<i>Donor</i>	<i>Amount</i>
For Library Endowment	Carnegie Corporation	\$8,750 on account
For Medical Information	Milbank Fund	10,000 " "
For Rare Book Fund	Walter S. Ladd	1,000
For Rare Book Fund	Samuel W. Lambert	100
For Endowment Fund	Seth M. Milliken	500 in stock
For Bacteriology and Sanitary Science	Louis L. Seaman (bequest)	4,479.10 on account
For Academy Publications	Robert S. Clark	5,000
For the Promotion of Orthopedic Surgery	Ernest H. Arnold (bequest)	558.58
For Rare Book Fund	"One lost dime"	.10
TOTAL NEW ENDOWMENT		30,388.08

Current Expenses

For Library Expense	Anonymous	10,000.
British Museum Catalogue	Samuel W. Lambert	200.
For New Books	Mrs. Walter M. Brickner	150.
For Foreign Scholarship	Mrs. Alexander Cochran Bowen	4,000.
For Publishing Anniversary Discourse	Friends of James Ewing	275.
For Slit Lamp	Section of Ophthalmology	35.
For Public Health Relations	The late Mrs. E. H. Harriman	7,500.

TOTAL CONTRIBUTIONS CURRENT EXPENSES 22,160.00

TOTAL GIFTS 52,548.08

The following have been received during the year:

BUILDING FUND YEAR 1932

Received from Members:

3 at	\$1,000	.....	\$3,000.00
2 at	500	.....	1,000.00
1 at	300	.....	300.00
1 at	250	.....	250.00
1 at	200	.....	200.00
7 at	100	.....	700.00
11 at	50	.....	550.00
1 at	40	.....	40.00
49 at	25	1,225.00
1 at	24	24.00
3 at	15	45.00
4 at	10	40.00
1 at	5	5.00

<i>Total from Members</i>	\$7,379.00
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From Non-Members:

E. S. Harkness	\$125,000.00
Harry Harkness Flagler	1,000.00
Samuel and Harry Sachs	1,000.00
Lucius N. Littauer Foundation	1,000.00
Vincent Astor (E. H. Pool).....	500.00
Pyridium Company (Jos. McCarthy).....	250.00
Mary Harriman (Jas. A. Miller).....	200.00
Pierre C. Cartier (E. H. Pool).....	100.00
"Through Dr. Osgood"	100.00
Regina D. Stroock	100.00
Thomas C. Cochran (Foster Kennedy).....	100.00
Arthur Curtis James	25.00

<i>Total received year 1932</i>	\$136,754.00
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The Trustees and Council report received, during the year 1932, gifts as follows:

For Endowment:

Milbank Memorial (Press Relations).....	\$10,000.00
Seth M. Milliken.....	500.00

For Current Expenses:

Anonymous Donation	10,000.00
Mrs. E. H. Harriman for Public Health.....	7,500.00
G. F. Whitney for Graduate Fortnight.....	2,500.00
Josiah H. Macy Foundation for Graduate Fortnight.....	1,000.00
Anonymous for Graduate Fortnight	1,000.00

For Special Purposes:

Carnegie Corporation for Library Fund.....	9,750.00
Robert Sterling Clark for Academy Publications.....	5,000.00
Louis Livingston Seaman Estate for research in the field of bacteriology and sanitary science.....	1,101.09
Mrs. Alexander Cochran Bowen for Foreign Scholarships....	1,000.00
Milbank Memorial for Press Relations.....	2,500.00
Milbank Memorial for New York State Health Commission...	2,500.00
W. G. Ladd for Rare Book Fund.....	1,000.00
First District Dental Society for Books.....	500.00
Ernst Hermann Arnold Estate for Orthopedic Surgery.....	500.00
Samuel W. Lambert for British Museum Catalog.....	200.00
Mrs. Walter M. Brickner for new books.....	150.00
Carll Tucker for Rare Books.....	100.00
Samuel W. Lambert for Rare Book Fund.....	100.00
B. S. Oppenheimer for purchase of books on Kidney Diseases	25.00
Selina Barnard for purchase of books on Neurology.....	5.00

ALLOCATION OF FELLOWS' DUES FOR 1933

1. Building Operation—Salaries	\$ 23,395.75
“ “ —Expenses	11,330.00
2. Sections and Stated Meetings—Salaries	5,705.00
“ “ “ “ —Expenses	5,000.00
3. Membership Bureau and Comptroller; Subscriptions to Bul- letins	3,000.00
4. Library Maintenance	4,176.00
5. Library	8,393.25

Total sum to be received\$ 69,000.00

ABSTRACT OF TREASURER'S REPORT

I have the honor to present The New York Academy of Medicine Statement of Assets and Liabilities as at December 31, 1932, as follows:

ASSETS

Cash in Bank and on hand..... \$29,088.98

*Investments:

Guaranteed Mortgages	\$1,187,150.00	
Stocks (Market \$335,181.50).....	883,684.25	
Bonds (Market \$518,566.25).....	796,101.50	
Income Producing Real Estate.....	136,105.63	3,003,341.38

Due from: Bond and Mortgage Guarantee Co.....	31,750.00
Lawyers Mortgage Co.....	24,600.00
R. H. Witthaus Estate.....	7,198.92
G. F. Whitney	2,500.00
Charles A. Powers Estate.....	1,513.98

Fixed Assets:

Academy Land and Building.....	\$1,990,766.20
Library	657,276.45
Equipment, Furnishings and Portraits.....	191,526.16
	2,839,568.81

Deferred Assets and Prepaid Expenses:

Unexpired Insurance Premiums.....	\$2,713.07
Nomenclature of Diseases Fund—1932 Expenditures to be received in 1933.....	527.74
Dr. William MacNider pre-payment re: 1933	.
Gibbs Prize Fund Income.....	210.49
	3,451.30

Total Assets	\$5,943,012.87
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*List may be reviewed by members upon application to the Director or the Treasurer's office.

LIABILITIES

General Property Fund	\$2,695,275.03
Endowment Fund	1,364,190.25
Educational Endowment Fund	1,250,000.00
Library Funds	189,126.07
Building Fund for New Addition.....	148,151.07
Thomas W. Salmon Memorial Fund.....	100,000.00
Edward N. Gibbs Memorial Prize Fund.....	21,482.57
Public Health Relations Reserve Fund.....	18,268.21
Academy Rare Book Fund.....	12,112.60
Alfred Lee Loomis Entertainment Fund.....	11,000.00
William S. Halstead Fund.....	10,000.00
Wesley M. Carpenter Lectureship Fund.....	5,813.09
Louis Livingston Seaman Fund.....	4,404.09
Hermann M. Biggs Lectureship Fund.....	4,000.00
Academy Medal Fund.....	3,000.00
L. Duncan Bulkley Lectureship Fund.....	2,000.00
Ernst Hermann Arnold Fund	534.37
Reserve for Equipment Depreciation.....	\$ 42,630.53
Special Reserve Fund.....	32,221.25
	74,851.78
	\$5,914,209.13
Accounts Payable (1932).....	1,840.11
Employees Annuity Reserve	1,113.78
Deferred Income (1933 Dues).....	140.00
Trust and Restricted Funds.....	25,709.85
Total Liabilities	\$5,943,012.87

SETH M. MILLIKEN, *Treasurer.*

STATEMENT OF INCOME AND EXPENSE

INCOME

Investments		\$116,310.60
Dues Members	\$70,355.00	
Library	1,270.00	71,625.00
Room Assessments		15,235.88
Anonymous 1932 Expense Contribution.....		10,000.00
Bibliography and Photostat		5,218.92
Bulletin Subscriptions		1,097.21
Bank Interest		855.09
Administration Fees—Bowen and Salmon Funds.....		435.00
Profit on Sale of Investments.....		218.43
Messenger Fees		67.74
Miscellaneous		17.94
		<hr/>
		\$221,081.81
Restricted:		
Library Funds	\$16,145.58	
Public Health Relations Committee.....	7,575.00	
Contributions for Book Purchases.....	330.00	24,050.58
		<hr/>
		\$215,132.39

EXPENSE

Administration and General	\$53,093.40	
Building Operation	41,230.89	
Library	84,431.22	
Medical Education Committee.....	28,735.32	
Public Health Committee	15,828.11	
Sections and Scientific Meetings	12,692.29	
Press Relations Bureau	7,670.91	
Poliomyelitis Study	176.25	213,858.39
		<hr/>
Transferred to Special Reserve Fund.....		\$ 1,274.00

SETH M. MILLIKEN,
Treasurer.

STATEMENT OF SPECIAL FUNDS

BALANCES DECEMBER 31, 1932

For the General Purpose of the Library:

THE LIBRARY FUND

Balance Jan. 1, 1932 (including bequests of Joseph D. Bryant \$5,648.18 and E. B. Bronson \$5,000.00)	\$48,098.72
Add: Gift from Carnegie Corporation	8,750.00
Receipts from Sale of Triplicates.....	21.35

\$56,870.07

Landon Carter Gray Memorial Fund, Established 1911	50,000.00
Anna Woerishoffer Fund Established 1897.....	15,000.00
Horace Putnam Farnham Fund. Established 1889	10,000.00
German Hospital and Dispensary Fund. Established 1903	3,000.00
James S. Cushman Fund. Established 1897.....	1,000.00
Orville Ranney Flower Fund. Established 1897...	1,000.00
William T. Lusk Memorial Fund. Established 1898	1,000.00
Albert William Warden Fund. Established 1906..	1,000.00
J. Marion Sims Memorial Fund. Established 1896	100.00
Rudolph Witthaus Fund. Legacy of Rudolph A. Witthaus, M.D. Established 1917. Principal not received by Trustees, will approximate....	\$110,000.00

LIBRARY FUNDS RESTRICTED TO BOOK PURCHASES

Everett Herrick Fund. Established 1915.....	25,000.00
Phillipine Meyer and Ernst Jacobi Fund. Established 1887.....	11,486.00
Ernst Krackowizer Fund. Established 1897.....	2,000.00
Austin Flint Memorial Fund. Established 1910..	1,200.00
Merrill Whitney Williams Fund. Established 1895	220.00

LIBRARY FUNDS RESTRICTED TO PURCHASES OF SPECIAL BOOKS

L. Duncan Bulkley Fund. Income to be used for the purchase of books on Cancer. Received 1929	5,000.00
Bullowa Memorial Fund. Income to be used for the purchase of books relating to the Ductless Glands. Established in 1919.....	1,000.00
James P. Tuttle Fund. Income to be used for the purchase of books on Diseases of the Digestive Tract. Established 1913.....	1,000.00
A. L. Northrup Dental Fund. Gift of the First District Dental Society, N. Y. Income to be used for the purchase, binding and care of books upon Dentistry. Established 1897.....	250.00

\$189,126.07

FUNDS RESTRICTED TO SPECIAL USES

Thomas W. Salmon Memorial Fund from Thomas W. Salmon, Inc. to establish fund.....		100,000.00
Academy Rare Book Fund Balance, Jan. 1, 1932	\$11,006.00	
Add: Gift from Walter G. Ladd.....	1,000.00	
Proceeds from sale of Cardozo Books....	106.50	
Sundry .....	.10	12,112.60
<hr/>		
Wesley M. Carpenter Lectureship Fund. Income to be used annually for one Medical lecture. Established 1891		5,813.09
Hermann Michael Biggs Lectureship Fund. Received from Mrs. Biggs and New York Tuberculosis and Health Association in 1930. Income to be used for lectures on Public Health and Preventive Medicine		4,000.00
L. Duncan Bulkley Lectureship Fund. Income to be used for lectures on Medical Aspects and Treatment of Cancer. Established 1929.....		2,000.00
Educational Endowment Fund (Rockefeller Foundation)		1,250,000.00
Academy Medal Fund. Gift of Dr. Samuel McCullough		3,000.00
Building Fund for New Addition		
Balance Jan. 1, 1932	\$ 11,397.07	
Add: Receipts 1932.....	136,754.00	148,151.07
<hr/>		
Edward N. Gibbs Memorial Prize Fund. Income to be awarded to a research worker on Diseases of the Kidney. Established 1901.....		21,482.57
Public Health Relations Reserve Fund.....		18,268.21
Alfred Lee Loomis Entertainment Fund. Established 1895		11,000.00
Louis Livingston Seaman Fund received in 1932 to be "applied to the furtherance of original investigation and research in the field of bacteriology and sanitary science".....		4,404.09
Ernst Hermann Arnold Fund received in 1932. Income to be used for Section on Orthopaedics		534.37

UNRESTRICTED GENERAL FUNDS

General Property Fund Balance Jan. 1, 1932 (Including bequest of Celine B. Hosack \$70,000.00)	\$2,669,905.44	
Add: Library Additions for 1932.....	22,491.54	
Equipment	2,878.05	2,695,275.03
<hr/>		

William S. Halstead Fund. Established 1930.....			10,000.00
Endowment Fund Balance Jan. 1, 1932.....	\$1,349,025.25		
Including gifts and legacies of:			
Everett H. Herrick	\$25,000.00		
Walter B. James	25,000.00		
Libbie V. Wagner	25,000.00		
Mrs. Harry Payne Whitney	25,000.00		
W. Gilman Thompson	10,000.00		
Ramon Guiteras	4,911.80		
John T. Nagle	2,500.00		
Wm. K. Vanderbilt	2,500.00		
Seth M. Milliken	2,500.00		
Louis F. Bishop	320.00		
Add: First installment of a \$60,000.00 grant from The Milbank Memorial Fund toward endow- ment of the Medical Information Bureau.....		\$10,000.00	
Admission Fees		4,630 00	
Gift from Dr. Seth M. Milliken.....		500.00	
Sale of Typewriter		35.00	1,364,190.25
Special Reserve Fund Balance Jan. 1, 1932.....		\$30,947.25	
Add: 1932 addition		1,274.00	
			\$32,221.25
Reserve for Equipment Balance			
Jan. 1, 1932	\$33,930.53		
Add: 1932 addition	8,700.00	42,630 53	74,851.78
			\$5,914,209.13
			SETH M. MILLIKEN, Treasurer

AUDITOR'S CERTIFICATE

(Page 8 of their Report)

We have audited the accounts and records of The New York Academy of Medicine for the year ended December 31, 1932, and hereby certify that the Balance Sheet and Statement of Income and Expense herewith submitted, in our opinion, correctly reflect the financial condition as at December 31, 1932, and the results of operations for the year under review, the accounts being kept on a cash basis.

Respectfully submitted,

MILLER, DONALDSON AND CO.

REPORT OF THE COMMITTEE ON ADMISSION

The Committee on Admission reports to the Academy that during the past year 154 applications for membership were considered. Of these 116 were recommended for Resident Fellowship, 10 for Non-resident Fellowship and 10 for Associate Fellowship; 18 applicants were dropped.

The Committee met each month except during the summer and reports an attendance of nearly 100 per cent. The President and Director were present at almost every meeting. On December 31, 1931, there were 26 vacancies. There are 68 applicants for Fellowship and 4 for Associate Fellowship now before the Committee.

The Committee seeks the cooperation of the Fellows in asking that they give support to candidates believed to be desirable, and write as fully as possible in regard to them. The Committee also asks that the Fellows exercise greater care in considering whether or not they desire to support a candidate. It has happened on a number of occasions during the past that one or more of the sponsors of an applicant have withdrawn their approval of the candidate, either verbally or in writing, which is often embarrassing to the Committee.

ALFRED T. OSGOOD,
Chairman.

REPORT OF THE COMMITTEE ON LIBRARY

The increase in the number of readers this year has been very considerable, for 47,042 have registered as compared with 40,412 in 1931. No doubt this has been due partly to the fact that doctors have not been so busy in private practice this year. October, with 4,732 readers, showed a greater number than any other month.

GIFTS

Of the many interesting and valuable books presented to the Library during the past year, only a few may be mentioned. Dr. W. S. Thomas was the donor of the *American Museum*, a periodical published in Philadelphia, 1787-1792,

containing articles by contemporary American writers. Benjamin Rush, Samuel L. Mitchill, Benjamin Franklin and other men prominent in medicine and science were frequent contributors. Their papers have been carefully indexed and catalogued. Dr. Alfred F. Hess kindly gave the Library three early books on scurvy. A collection of letters from well known nineteenth century doctors such as Willard Parker and Oliver Wendell Holmes was received from Miss Mary Hall Sayre who has already been very generous to us with other things which belonged to her father. Miss Mildred Sawyer presented the Library with several books, and miscellaneous articles for the historical museum. One of the books, S. Weir Mitchell's *Madeira Party*, has an inscription in the author's hand. Through the kindness of Mr. Carl Tucker, we were able to buy: Vesalius, *Deß ersten und besten Anatomici, Zergliederung des menschlichen Körpers*, Augsburg, Maschenbauer, 1723; Fracastorius, *Opera omnia*, Venetiis, Juntas, 1574; Paracelsus, *Compendium*, Francofurti, 1568; and an early undated edition of Conrad Gesner, *Evonymus . . . De remediis secretis*, printed at Zürich by Froschauer.

Through the kindness of Dr. Homer F. Swift and the other legatees, we have received a large collection of framed engraved portraits of doctors which belonged to the late Dr. John A. Fordyce. Dr. C. L. Dana presented one hundred and fifty engravings. We are once more much indebted to Dr. Margaret Barclay Wilson, who gave to the Academy another thousand books or so, about one half of which have foods or cookery as their subject, and the rest deal with hygiene or one of the other sciences.

PUBLISHING FUND

Through the energetic and successful efforts of Dr. Samuel W. Lambert, a member of this committee, a "revolving" publishing fund for the Library is being collected from friends of the Academy. An atlas containing woodcuts of Vesalian illustrations printed today from the original wood-blocks, now in the University Library at Munich, will be the first publication. These blocks are almost four

hundred years old. Jan Stephan van Calcar was the illustrator of Vesalius.

PURCHASES

The Library was very fortunate in having an opportunity to acquire a laboratory notebook in the hand of Walter Reed. Another manuscript of interest is a thirteenth century Italian transcription of a poem entitled, *de virtutibus herbarum*, attributed to several early writers and known under the name "Macer Floridus." Other purchases include a scrapbook of doctors' bills, Boston, 1745-1861, in which many of Boston's early physicians are represented; Nicolaus Praepositi, *Prepositas his practise*, London, John Wolfe for Edward White, 1588; Andreas Caesalpinus, *Quaestionum peripateticarum lib. V. . .*, Venice, Juntas, 1593, which contains his description of the lesser circulation; Benjamin Church, *Oration*, Boston, 1773, delivered in commemoration of the Boston massacre by the important doctor who became a traitor; and Josias Simler, *Vita Conradi Gesneri*, Zürich, Froschauer, 1566, an early and rare biography of a great man.

VOLUNTEER WORKERS

We are very grateful for the continued good work of Miss Lambert in cataloguing our collection of portraits. We also wish to thank the following other volunteer workers: Dr. Edward F. H. Sutton (some special cataloguing), Mr. J. Whitham (checking files of hospital reports), Miss F. Wendte (Periodical Department), Mrs. Carrie R. Carns (recataloguing books on the history of medicine), and several students from Hunter College (foods and cookery collection).

EXHIBITIONS

Dr. Dudley De V. Roberts prepared an exhibition from March, 15 to May, 1 of fiction and dramatic works written by medical men, which awakened a great deal of interest. The books shown were those in the possession of the Academy (many presented by Dr. Roberts), whilst publishers and other kind friends lent valuable volumes. During the

Post-Graduate Fortnight there was an exhibition of writings illustrating the evolution of our knowledge of cancer, which was arranged by Dr. Cushman Haagensen. It was well thought of, and will be reproduced, as far as is possible on paper, in a forthcoming number of the *Bulletin*. A learned society has asked to borrow the exhibition *en masse*. Dr. Jerome P. Webster prepared an exhibition from his own collection to illustrate his paper read in November before the Section of Historical and Cultural Medicine on "Gaspere Tagliacozzi, Sixteenth Century Plastic Surgeon" and this has been continued, through his kindness, for over a month in the Library.

CATALOGING

In the published indexes of medicine, articles in systems of medicine, etc., have received scanty and irregular attention. Often these articles are the best to be found anywhere on their subjects, so during the last year or so, a large number of "analytical" catalogue cards, under author and subject, have been made for these, and placed in the main catalogue. We have always made such cards also for important articles in magazines which were not indexed by the published indexes. This work grows in importance when we think that the *Quarterly Cumulative Index Medicus* has now reduced the number of magazines it indexes from about fourteen hundred to one thousand. We thus make articles available to our readers which otherwise might be lost and gone forever. Of course, this "analytical" cataloguing places more responsibility and work upon the shoulders of our cataloguing department and we regard it as of an importance greater than cataloguing reprints of articles already indexed in the printed indexes.

This year also, author cards were completed for the books on foods and cookery, which large collection was presented a few years ago by our benefactor, Dr. Margaret Barclay Wilson. Cataloguing of our Russian periodicals and books was also continued this year. All these things were done in addition to the usual cataloguing of the new material received. Shelf listing has continued except during enforced interruptions. The work on the books was

finished a year or so ago, and we are now engaged upon the bound periodicals whose titles fall under the letter "C".

PERIODICALS

One of the alterations in connection with the addition to the Academy building has resulted in a workshop for the Periodical Department, so that much of its work need no longer annoy readers in the Journal Room. In the latter room the new guide letters alphabetically arranged, make it easier for the readers to find a particular magazine. In addition to the heavy work upon the extensive collection of periodicals we take, we listed our holdings for the very useful *Union List of Serials in Libraries of the United States and Canada, Supplement, January 1925-June 1931*, which has been published recently. This took one member of the staff about one month, but it is for the good of numerous libraries. Many hours were spent in making a list of League of Nations Documents, not amongst those we have, but which we hope to acquire. Form letters were sent to all hospitals in New York City in cases where we did not have complete sets of their reports and other publications. Our next task will be to write for the reports of institutions in other parts of the country and abroad, so that our collections will be as rich as possible. Letters were also sent out to all the schools of chiropractic and osteopathy for their announcements and other publications. There still remains much work to be done in collecting calendars of medical schools throughout the world. The change in policy adopted by the *Quarterly Cumulative Index Medicus*, as alluded to above, has made it necessary for us to see what magazines, which were formerly indexed, have now been dropped from the list, so that we may decide what periodicals we must catalogue "analytically."

MISCELLANEOUS

Amongst a large number of subjects discussed at the monthly meetings of the Committee, was the cataloguing of reprints which was becoming a rather overwhelming task. We were being swamped by their numbers. It was decided merely to place on file those reprints of Fellows

who asked this to be done. In addition, of course, we continue to catalogue reprints from magazines which we do not take, and those reprints which contain new terms or names of new drugs in their titles, or which treat of new methods. It was decided to ask various medical societies and medical clubs to give us, or place on deposit in the Library, their old books of minutes or records. We are pleased to say that in this way we have already received the minutes of the New York Surgical Society, the Medical and Surgical Society, the Charaka Club, Section on Dermatology of this Academy, and the New York Obstetrical Society. Several times the question of increasing the number of this Committee was discussed, and possibly this change will be adopted by the Council some time in the near future.

Early in the year quite a large number of reference books were lost from the open shelves of the reading room. To prevent this, they are now kept in the stacks just behind the delivery desk. The reader must sign a slip for them, but they may be obtained quickly.

The budget for subscriptions to periodicals was not cut this year, but it will be seen that a considerable saving has been made in the purchase of books. About twenty-two hundred fewer volumes(including bound magazines) were accessioned. There was a satisfactory increase in the number of interlibrary loans. In the Bibliographical Department more editing of manuscripts was done than before.

A vast amount of extra work has been found necessary in preparation for moving into the Rare Book and History Room in the addition to the Academy, which is being erected. A new catalogue is well under way; pamphlets of interest to historical work, have been selected from the general pamphlet file, and the large section of histories has been reclassified and divided into small sections, each containing the history of one subject. The completion of the latter was facilitated by the diligent efforts of Mrs. Carrie R. Carns, who has volunteered her services for nearly a year.

STATISTICS FOR 1932

Donations.

Publishers who have kindly presented complimentary volumes:

Allen & Unwin, London.....	1	Macaulay Company.....	2
D. Appleton & Company.....	10	Manuel Marin, Barcelona	1
F. A. Davis Company.....	1	The Macmillan Company.....	4
Funk & Wagnalls.....	1	Oxford University Press.....	16
Paul Gottschalk, Berlin.....	4	W. F. Prior Company, Inc.....	12
Paul B. Hoeber, Inc.....	17	W. B. Saunders Company.....	38
Lea & Febiger.....	10	Viking Press.....	1

The following donors have given twenty or more volumes:

Bellevue Hospital.....	89	Dr. Howard E. Lindeman.....	65
Dr. Joseph Brettauer.....	87	Lying-In Hospital	31
Mrs. Walter M. Brickner.....	24	Estate of Dr. Stafford McLean	90
Dr. F. C. Brush.....	20	Dr. Madge C. L. McGuinness..	25
Dr. C. N. B. Camac.....	241	Dr. Herbert D. Manley.....	49
Cornell Medical College Library	53	Dr. Herbert Willy Meyer.....	22
Dr. E. H. L. Corwin	40	Mrs. William McMurdy.....	70
Faculdade de Medicina do Porto	23	Dr. Philip W. Nathan.....	250
Dr. Joseph H. Fobes.....	53	New York Public Library.....	171
Dr. William H. Haskin.....	21	Dr. Wendell C. Phillips.....	69
Dr. James Hermans.....	43	Dr. Henry A. Riley.....	64
Dr. Alfred W. Herzog.....	415	Dr. Dudley de V. Roberts.....	67
Mrs. R. A. Honor.....	50	Rockefeller Foundation.....	92
Estate of Dr. C. A. Leale....	41	Dr. George T. Strodl.....	39
The Misses Leale.....	44	Dr. Alfred S. Taylor.....	24
Lenox Hill Hospital Library...	254	Dr. William S. Thomas.....	22
Dr. Robert L. Levy.....	24	Dr. Hugh C. Thompson.....	55
Dr. Emanuel Libman.....	86	Dr. Cassius Lopez de Victoria	26
Dr. Margaret B. Wilson.....1059			

Donors of large numbers of unbound journals:

Archives of Pediatrics.....	456	Dr. Smith Ely Jelliffe.....	266
Dr. S. T. Armstrong.....	232	Dr. Howard E. Lindeman.....	572
Dr. Moses Aronson.....	275	Lying-In Hospital.....	5840
Dr. W. C. Calhoun.....	281	Dr. Madge C. L. McGuinness..	282
Dr. Herman E. Chayes.....	767	Municipal Reference Library..	226
Dr. Alfred E. Cohn.....	552	New York Public Library.....	680
Dr. E. H. L. Corwin.....	817	Dr. R. Ottolengui.....	586
College of Physicians & Sur-		Dr. Bissell B. Palmer.....	233
geons, Columbia University...	490	Dr. E. Parry.....	292

Dr. G. S. Dudley.....	238	Dr. Henry A. Riley.....	250
First District Dental Society..	433	Rockefeller Foundation.....	1548
Dr. W. C. Fisher.....	221	Rockefeller Institute for Medical	
Dr. A. L. Goodman.....	500	Research	2415
Dr. H. R. A. Graeser.....	203	Martin H. Smith Company.....	760
Dr. Isaac Hartshorne.....	241	Dr. W. B. Snow.....	253
Dr. John A. Hartwell.....	349	Dr. C. D. Van Wagenen.....	215
Dr. A. B. Hirsh.....	484	Dr. C. C. Vinton.....	1234
Dr. William C. Jacobson.....	266	Dr. B. W. Weinberger.....	279
Dr. Herman Jarecky.....	334	Dr. Linsly R. Williams.....	1039

Donors of money:

Miss Selina Barnard	\$ 5.00
Mrs. Walter M. Brickner	150.00
Mr. Carl Tucker	100.00

Number of donations:

Books	3,982
Journals	26,356
Pamphlets	9,979
Total	40,317

Miscellaneous donations:

Dr. Margaret W. Barnard.....	Fee bill adopted by Allegheny County Medical Society, March 2, 1864.
Dr. Edwin Beer.....	1 Nitze cystoscopes and the original Wappler high frequency machine.
Mrs. Arthur H. Cilley.....	A large number of medical instruments belonging to Dr. Eugene Fuller.
Dr. Warren Coleman.....	A lancet and scarifier for vaccination which belonged to Dr. John Scott Coleman, Augusta, Georgia.
Dr. Robert L. Dickinson.....	Original sketches of the heads of doctors by Dr. Dickinson. An itinerary of German-Austrian tour of the American Gynecological Club, 1912.
Dr. Simon Flexner.....	33 photographs.
Dr. E. F. Goldschmidt.....	Many letters addressed to Dr. Goldschmidt by noted surgeons abroad.
New York Obstetrical Society, through	
Dr. O. A. Gordon, Jr.....	Minutes and other papers of the New York Obstetrical Society.
Dr. Alfred M. Hellman.....	A document with the signature of Dr. David Hosack.

- Dr. G. Evan Hubbard.....Photostat of an order by Dr. Thomas Bond, Director of the Continental Hospital at Yellow Springs, Pa., Sept. 16, 1779 for Griffith Evans, Clerk, and Samuel Davis, Surgeon's mate.
- Human Welfare Group, New Haven, Conn.A photograph of Dr. Lafayette B. Mendel.
- Dr. Smith Ely Jelliffe.....198 negatives on neurology and its history.
- Dr. Samuel W. Lambert.....A list of accoucheurs appointed in 1823 and reports of the Committee of the Out-Door Lying-In Charity.
- Dr. John E. Lane.....Photostats of two Chinese articles.
- The Misses Leale.....Four pictures and one package of surgical instruments which belonged to Dr. C. A. Leale.
- Dr. John Leshure.....Three chorals.
- Dr. Charles W. Lester.....A bibliography of the published articles of Dr. Charles N. Dowd.
- Dr. Emanuel Libman.....A medal of Professor Fernand Nidal.
- Dr. Howard E. Lindeman.....Two book-cases.
- Mrs. Graham Lusk.....Thirteen photographs and one engraving of William Harvey.
- Dr. Herbert Willy Meyer.....Twenty boxes of instruments; one box of cystoscopes and lamps; 1 photograph of Sir John Lister and many case photographs, all of which belonged to Dr. Willy Meyer.
- New York Society for Relief of Widows and Orphans of Medical Men....A list of the original subscribers to the dinner in 1846 with their signatures.
- Poliomyelitis Research Commission...A bibliography on poliomyelitis on cards.
- Dr. Sigmund Pollitzer.....33 photographs.
- Russian Medical Society.....Current subscriptions to five Russian medical journals.
- Miss Mildred SawyerTwo pharmaceutical jars; two large apothecary glass jars (French, about 1800). A silhouette of Dr. Crawford, Feb. 1827. A pewter bleeding dish. Tumbler lamp. Charms of South African witch doctor. Bottom part of a pewter hot water dish. Scales. Ivory figures of skeleton and frogs. Reproduction of a chemist's advertisement.

- Miss Mary Hall Sayre.....Lecture on Tenotomy, by Dr. S. B. Richardson, October 1840, and a file of letters. A ball of hair taken from cow's stomach in the possession of Dr. Lewis A. Sayre and Dr. Reginald H. Sayre. One letter and a framed photograph of Dr. John C. Young. Constitution and by-laws of the New York Pathological Society, revised Feb. 17, 1847. About one hundred letters addressed to Dr. Lewis A. Sayre.
- Bust of Dr. Lewis A. Sayre, portrait of Dr. Reginald H. Sayre.
- Etching by Dr. L. M. Yale, July 19, 1876. New York Academy of Medicine quinquennial list, 1911. New York Academy of Medicine Charter, etc. 1911 and 1914. Three plaster plaques by Trudeau of Pigné, 1849; Trudeau, himself; Trudeau's father-in-law, Francis Berger.
- Fifteen cases of medical instruments and seven miscellaneous instruments which belonged to Dr. Lewis A. Sayre.
- Dr. Homer F. Swift.....A large number of engravings, the collection of Dr. J. A. Fordyce. From Dr. Addison Fordyce and Dr. Elizabeth C. Jagle, through Dr. Homer F. Swift.
- Section on Dermatology of the New York Academy of Medicine, through Dr. Leo Spiegel.....Minutes and records of the section on Dermatology.
- Dr. Hugh H. Trout.....Framed souvenir brick from foundation of "Guest House," Jamestown, Va., and brick from building where Southern Medical Association was organized.
- Dr. B. W. Weinberger.....A menu of the 26th annual dinner, University of Bishop's College, Dec. 9, 1896, and a photostat of the article "New York Lying-In Hospital" which appeared in the New York Commercial Advertiser, August 10, 1798.
- Various donors.....61 photographs.

Accessions

Books and Periodicals bought	2,971
“ “ “ donated by publishers	363
“ “ “ donated by Fellows	965
“ “ “ donated from other sources	1,654
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Total added	5,953
Discarded since 1928	1,489
Total in Library	182,981
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Octavo pamphlets added	1,668
“ “ discarded since 1928	350
“ “ total in Library	116,489
Quarto pamphlets added	798
Bibliographies added since 1927	567
Quarto pamphlets discarded since 1928	34
“ “ total in Library	13,998
Folio pamphlets added	2
“ “ total in Library	58
Reprints filed (unaccessioned)	691
Reprints discarded (unaccessioned)	9,600
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Total pamphlets in Library (catalogued)	130,645

Growth of Library's Collection

(exclusive of duplicates and unbound material)

*Additions**Total Collection*

	Volumes	Pamphlets	Reprints (unaccessioned)	Volumes	Pamphlets
1924	3,362	6,422	.....	134,185	94,929
1925	5,135	3,756	.....	139,320	98,685
1926	5,160	2,854	.....	144,480	100,939
1927	5,776	3,625	.....	150,256	114,284
1928	6,009	3,090	.....	156,265	117,374
1929	7,135	2,637	.....	163,400	120,011
1930	7,107	5,760	7,812	169,906	125,610
1931	8,009	1,636	18,950	177,249	127,892
1932	5,732	1,526	691	182,981	130,645

Periodicals

	Subscriptions	Exchange or Gratis	Total
1. American	198	460	658
2. Belgian	9	9	18
3. British (except Canadian and Indian)	184	46	180
4. Canadian	6	23	29
5. Chinese	2	5	7
6. Dutch	14	9	23

7. French	174	33	207
8. German (including Austrian).....	334	9	343
9. Indian (Asia).....	10	10	20
10. Italian	106	34	140
11. Japanese	5	34	39
12. Portuguese (a) Portugal	1	1	2
(b) Brazil	5	18	23
13. Russian	4	9	13
14. Scandinavian	35	12	47
15. Spanish (a) Spain	17	19	36
(b) South America	5	62	67
16. Swiss (including League of Nations publications)	22	3	25
17. Miscellaneous (Polish, Greek, Hun- garian, Czech, Rumanian, Hebrew, etc.)	7	50	57
<hr/>			
Total 1932	1088	846	1934
Total 1931	1142	850	1992
Total 1930	1095	870	1965

Old titles of which no 1932 numbers have been received (in-
cluding annual reports and documents)..... 331

New titles added in 1932 (a) Journals137
 (b) Annual reports, etc..... 45 182

Summary of statistics:	Regular	Irregular	Total
Periodicals	1934	261	2195
Annual reports, etc.....	517	167	684
Documents	83	23	106
<hr/>			
Total	2534	451	2985

Exchanges:

641 copies of the *Bulletin* are sent in exchange for 722 publications of other institutions.

Circulation

	Books	Pamphlets	Journals	Borrowers
1924	3,302	1,130	3,681	720
1925	3,181	1,319	3,708	713
1926	2,453	909	2,825	629
1927	3,178	1,104	3,764	765
1928	3,010	1,014	4,123	733
1929	2,772	872	4,228	765
1930	3,697	1,032	4,915	884
1931	4,453	1,027	6,147	968
1932	5,012	1,131	7,291	993

Interlibrary Loans

1930	637 books to 57 libraries
1931	820 books to 80 libraries
1932	1322 books to 89 libraries

Reading Room

	Total number of readers	Holidays and Sundays
1924	27,400	587
1925	33,425	708
1926 (moving)	22,350	613
1927	26,093	1,135
1928	29,239	1,519
1929	31,180	1,437
1930	37,539	1,558
1931	40,412	1,408
1932	47,042	1,716

Finance

Binding (2,584 books)	\$ 5,986.45
Periodicals	9,564.02
Completing files	318.63
Books	5,617.82
Miscellaneous	5,631.65
Salaries	57,312.65
Total	<u>\$84,431.22</u>

Miscellaneous

1,665 library-cards have been issued to non-Fellows.

30 library-subscriptions were registered, including 12 renewals.

7,715 books and pamphlets were repaired.

The Bibliographical Department carried out 352 pieces of work, among which was the compilation of 97 bibliographies. In addition, about 604 hours' work was done for Academy departments. The year's income was \$3,888.32. Also, one member of the Department worked half-time for the Rare Book and History Room from September 15 to December 31.

The Photostat Department did 531 pieces of work. The receipts came to \$1,630.86, not including work done for the Academy to the amount of \$191.85.

About 3500 portraits in books and journals have been catalogued.

3,785 theses have been catalogued this year, for which 2,240 cards were sent to Columbia University Library.

The Duplicates Department gave to 65 libraries 2,428 volumes, 6,362 unbound journals, and 5,429 theses.

The library's messenger made 277 deliveries for Fellows out of a total of 1,246.

The Librarian was made one of the Vice Presidents of the History of Medicine Section of the British Medical Association which held its Centenary celebrations in London last summer.

ALFRED F. HESS,
Chairman.

REPORT OF THE COMMITTEE ON PUBLIC HEALTH RELATIONS

The following is a brief account of the activities of the Committee on Public Health Relations for the year 1932.

THE ADMINISTRATION OF VETERANS' RELIEF

Over six billion dollars have been spent since the World War on so-called veterans' relief by the Federal Government. In 1932 the bill for veterans' relief exceeded a billion dollars and it is estimated that if the law be left unmodified, it will exceed two billion dollars by 1942. By the time the last World War beneficiary dies, the present rate of expenditure will bring the total cost of veterans' relief to over a hundred billion dollars.

A large part of this sum is expended on medical care and the support of veterans who have suffered no war disability. Recent investigations have revealed such a scandalous state of affairs in the administration of this bounty that a nation-wide protest has been raised against the present practices which have brought discredit to the system.

The Committee on Public Health Relations published a report setting forth in full its objections to the manner in which veterans' relief is being conducted and calling attention to the need for revision of the system. The report has been widely distributed and has been influential in bringing about concerted action on the part of other agencies likewise interested in putting an end to this stupendous exploitation of the tax-paying public. The Report under the title "Veterans' Legislation and its Relation to Health" was published in May.

The Committee has also joined with the five County Medical Societies of the City in protesting against the unwise extension of the hospitalization program for veterans, involving the erection of costly hospital buildings for the care of veterans whose illness or disability bears no relation whatever to their army service. The enactment of the Economy Law by a special session of Congress in the middle of March, 1933 gave the President power to deal with this whole situation.

The granting of special privileges in the Civil Service to war veterans, regardless of their other qualifications, is likewise a matter of grievous concern. The preferential treatment of war veterans, when they can obtain from the Veterans' Bureau a statement that they suffered a disability, even if it be only one per cent, is crippling and disrupting the Civil Service system throughout the country.

To remedy the inequalities and abuses in the Veterans' Preference Law of New York State, a special committee has been formed which is sponsoring legislation for the elimination of preference in promotion examinations, and for the placing of control of the granting of preferences in the Civil Service Commission.

THE MEDICAL ASPECTS OF WORKMEN'S COMPENSATION

From its very beginning the Act providing for compensation for injuries sustained by workmen in the course of their work was inadequate in its medical aspects. As far back as 1921 this Committee, after having made a study of the then existing situation, pointed out the inherent weakness in the medical administration of the law. The growth of reprehensible and venal practices of various kinds, has placed an enormous burden on industry and indirectly on the consumer and taxpayer, without benefiting a whit the injured man; on the contrary, placing him only too often under the care of organized unscrupulous exploiters. Early in 1932 the Committee recommended to Governor Roosevelt that an official inquiry be made into the situation. This resulted in the appointment of a Com-

mittee by him. The Governor's Committee made two reports during the year. The second one, dealing exclusively with the medical aspects of the administration of the law, was submitted to Governor Roosevelt in the middle of December, 1932, with the suggestion that a Commissioner be appointed under the Moreland Act to probe this matter further. The Governor felt, however, that perhaps more would be accomplished if, instead of further study, the situation be considered by The New York Academy of Medicine from a professional standpoint, and recommendations made for legislative and administrative changes which would obviate the existing evils. In view of the fact, however, that workmen's compensation is a State wide measure, the Academy of Medicine and the Medical Society of the State of New York recommended to Governor Lehman that the matter be placed in the hands of a committee representing the two organizations. Following this recommendation, the Governor appointed a committee of ten—five representing the Academy and five the State Society.

THE OVERCROWDING OF MUNICIPAL HOSPITALS

The total number of beds available for acute and semi-acute conditions in the hospitals of the Department of Hospitals of the City of New York is 10,711. As a result of the depression, for the last three years the municipal hospitals of the City have been overcrowded to an extent of 20% to 25% over their normal capacity during the major part of each year. This overcrowding has necessitated putting additional beds and cots in the wards, and also the utilization of corridors for the accommodation of patients. The overcrowding has been more pronounced in some instances than in others and in some wards of certain of the hospitals than in others. It has been particularly acute at Bellevue, Kings County, Harlem, Fordham, Coney Island, Sea View and Metropolitan. The most serious overcrowding in the city is in connection with the facilities for the care of tuberculosis, the contagious diseases during the winter months, and the chronic patients, such

as neurological, mental, metabolic, orthopedic and the like. There is also a serious overcrowding in the maternity services. The existing situation is due primarily to the present economic crisis and its sequelae, the longer average stay of patients in the hospitals because many are without homes, and inadequate facilities for outside care of chronics and convalescents. It is also claimed that certain persons who could afford to pay for accommodations in private hospitals occupy beds in some of the more luxurious municipal hospitals.

Additional facilities in buildings under construction will make available 3,277 beds for various purposes when these buildings are completed.

The practice of referring patients from the municipal hospitals to the private hospitals and paying for them as "city charges," relieves somewhat the burden, but does not solve fully the problem of overcrowding. This practice is complicated by the fact that the extent to which facilities in private hospitals may be available at any given time for public charges is an uncertain quantity, and also, that the city pays for maintenance in the wards of private hospitals a sum considerably below the average per capita maintenance cost of these hospitals. This is less than it costs the city to maintain a patient in its own hospital for acute conditions, and it is a question how long the private hospitals will be able to meet the requests of the city under these circumstances. The city, on the other hand, because of its financial situation, cannot afford more than \$4,000,000 annually for the payment of city charges in the private hospitals.

Jointly, with a number of business and welfare agencies, the Committee suggested certain remedies, among these the home care of certain classes of patients with the aid of the Visiting Nurse Associations and the taking over of some of the available unoccupied private hospital buildings, to be used as recovery homes.

CARE OF OBSTETRICAL PATIENTS IN CITY HOSPITALS

There is a city regulation that no patient who has had any prenatal care given by a clinic or a doctor connected with a private hospital will be accepted as a city charge in that hospital. During the past year both the clinics and the ward services in the city hospitals have been so seriously overcrowded that it has been necessary to refer a good many patients to private hospitals, but the matter of payment to the hospitals for the care of these city charges has been seriously complicated by the above rule. The Committee has actively supported the Commissioner of Hospitals in his efforts to secure the suspension of this rule in the present emergency, and to secure adequate appropriations for the care of dependent mothers, before, during and after delivery.

CANCER DIVISION MUNICIPAL HOSPITALS

A request from the Municipal Civil Service Commission for advice with regard to appointment of personnel in the Cancer Division of the Department of Hospitals led to a wider study of the Cancer Division itself in its various aspects, particularly in relationship to hospital organization and practice.

Prior to 1929 there was a Cancer Hospital on Welfare Island with a dispensary on East 59th Street and a cancer service at Bellevue and at Kings County Hospitals. Each was independent of the others with no common policy. The need to coordinate the work led to the creation in 1929 of a Division of Cancer.

There has been under way an extensive program for the development of the work of the Division of Cancer. The Department of Hospitals had placed before the Board of Estimate and Apportionment a request for a new central cancer hospital of several hundred beds. The hospital on Welfare Island was to be continued, and, in addition, special facilities with proper equipment and service for the care of cancer patients were to be created in other municipal hospitals. In each instance the patients

were to be treated by a specially trained staff whose work was to be coordinated through the Director of the Cancer Division. It was not proposed that all cancer patients be treated exclusively in the special services, but for cases in the other services where questions of deep x-ray and radium treatment arose, the Director of the Cancer Division and other members of the staff were to be considered as consultants to assure expert guidance in every instance.

While the Committee recognized the advantages and economy of such a plan of centralized direction of a technical service in the hospitals of the Department it questioned the need of similar arrangements with regard to clinical services, as well as the feasibility and practicability of it. The attending staffs of the various hospitals are not salaried officials and they do not come under civil service rules. They are appointed on the recommendation of the medical boards of the hospitals, or of the medical faculties of the several schools, as in the case of the three divisions at Bellevue Hospital. The principle of standardization and uniformity which underlies centralized organization cannot be applied to clinical medicine without stifling initiative and interfering with progress. However well an organization may be planned, its successful operation depends upon the breadth of view, judgment, enthusiasm, and executive ability of its head.

The Committee endorsed the proposal to provide a central hospital but advised that it be called a Cancer Institute. Such an Institute could be of real service to the city through study of the causes, nature and treatment of malignant disease, through training men interested in the subject, and finally through the educational influence it would exert among those entrusted with the care of the city's cancer patients in other hospitals. The carrying out of such a function is possible and can be made continuous only if the Institute be affiliated with, and under the supervision of one of the Medical Colleges which would exercise control similar to that over Bellevue Hospital divisions. The Cancer Institute, in fact, could operate most effectively if it also became a unit of Bellevue Hospital, for here is a

corps of surgeons, expert in every phase of surgery. Through its association with a university medical school, it is probable that funds for carrying on research would be more readily obtained.

In view of the above considerations, the Committee made the following recommendations:

1. That the Department of Hospitals should be advised that a centrally administered clinical division, whether it applies to cancer or to any other disease or clinical department, cutting across all the hospitals of the Department, is undesirable as a principle of organization and practice and is impracticable of realization.
In the event of the creation of an Institute in any field of clinical medicine, it may well be that such Institute should act in an advisory capacity for the care of patients within this field, who are under treatment in various hospitals of the Department. The Institute, however, should not exercise any power which will relieve the proper hospital authorities and staff from full responsibility for the efficient organization of their service and care of their patients.
2. That the establishment of a special Cancer Institute is desirable and should be encouraged, provided it is created for the study of the nature, causes, prevention and treatment of malignant disease; for affording full opportunity for training and experience to those working in this field; and in these and other ways, for enabling the city to give the best possible care to its patients.
3. That the successful functioning of the Institute requires that it become affiliated with and be under the supervision of one of the university medical schools. The Institute should be a unit of the Bellevue Hospital group.
4. That the appointment of the staff should be made on the basis of recommendations from the medical school.

HOUSING

The problem of housing of the masses presents hygienic, as well as economic aspects. Various civic organizations have requested the Committee's cooperation in formulating housing standards consistent with health. Conferences have been held with spokesmen for the State Housing Board, the Regional Plan Committee, the Housing Committee of the United Neighborhood Houses and the Housing Association of New York, at which existing regulations, as well

as future legislative proposals were discussed from the public health standpoint.

In the August 1932 issue of the Bulletin of The New York Academy of Medicine, the Committee published a report summarizing the studies that have been made on the effect of proper housing on health conditions. In this report, the Committee pointed out the paucity of the available information and the difficulty of ascertaining it. With regard to the existing situation in New York City, the Committee called attention to the need of amending the present Tenement House Law in at least two particulars:

1. The elimination of community toilets in tenements and the provision of a separate toilet for each family. The present law permits conditions which are not in the best interest of public health;
2. The elimination of "railroad" tenements as living quarters. The use of rooms which have no connection with outside air or light should not be permitted. This leads to overcrowding, darkness and the breathing of vitiated air.

SCHOOL VENTILATION

Suitable communications supporting a bill in the Legislature designed to modernize the present law with regard to school ventilation, were prepared and sent to the legislative committee in Albany. The present law has been on the statute books for over thirty years and provides for mechanical ventilation of school buildings and a supply of thirty cubic feet of air per minute per child. The bill proposed to do away with these provisions and to leave the determination of the type of ventilation in the school, in each instance, to the state school authorities. Recent scientific research has shown the fallacy of the former belief that the problem of ventilation is primarily chemical in character depending on the amount of CO_2 in the air. It is known to depend largely on physical conditions such as temperature, humidity and proper movement of the air, which can be acquired without the expensive system of mechanical ventilation heretofore required. The bill passed the Legislature but was vetoed. It has been introduced again in the 1933 session.

SUPERVISION OF FOOD HANDLERS

In 1918 a Division of Industrial Hygiene was established in the Health Department for the examination of bakers and other food handlers. Quite a proportion of them was found to be suffering from communicable disease, particularly tuberculosis. Since that time, by provision of the Sanitary Code, every person connected with the manufacture and handling of food has been required to undergo an annual physical examination. On the basis of these examinations certificates are issued by the Department of Health which are essential for securing employment in this field of activity. In view of the perfunctory type of examination which the food handlers have been receiving, both at the Health Department clinics and at the hands of private physicians, the Committee has not considered this procedure of great value from the point of view of protection of the public health. Accordingly, the Committee advised the Health Commissioner that the force associated with this service be discontinued, and that the available funds and personnel be transferred to other more important activities of the Department. The examination of food handlers at the Health Department clinic has been discontinued and the matter left entirely to the private physicians in the city.

WORK PERMITS FOR CHILDREN

Children applying for work permits are required to possess certificates of physical fitness. The Committee has been interested in an effort to coordinate the work of the Health Department's medical inspection of school children in the elementary and continuation schools with the examination of applicants for work permits. In cooperation with the New York Child Labor Committee, the Public Education Association, the Department of Health and the Department of Education, a plan has been worked out for a more suitable and efficient system of correlating the medical inspection of school children with that of issuing work permits.

SCHOOL ATTENDANCE OF EPILEPTIC CHILDREN

The New York State Law excludes from school attendance all children whose mental or physical condition is such that attendance upon instruction would endanger their own safety and that of other children. The Department of Education requested the Committee to advise upon the question of whether or not children subject to epileptic seizures should be barred from school attendance under this rule. A special sub-committee gave the matter considerable attention from various angles and advised the Department of Education that children subject to only occasional seizures should not be excluded from school since they are safer in school than outside, and the occasional witnessing by normal children of an attack of seizure though involving an unpleasant contact with reality should not be harmful if the situation is properly handled by the teacher.

POLIOMYELITIS

The experiment of several years' duration concerning the value of convalescent serum in the prevention of paralysis in persons suffering from poliomyelitis, came to a close at the end of the summer of 1932. In view of the many factors that entered into the situation the results of the study were inconclusive, allowing no definite deductions to be drawn. The subject merits further study of a more intensive character. The report of the study was published in the October number of the Bulletin of the Academy.

MATERNAL MORTALITY

The three year study of maternal mortality, under the direction of Dr. Ransom S. Hooker, came to a close at the end of the year. This study, which was financed by the Commonwealth Fund, is probably the most painstaking ever undertaken, at least in this country. It involved the ascertainment of the details and the history of every case which resulted fatally. These facts were obtained from the hospitals, physicians or midwives concerned by medical investigators and all the details pertaining to each case were presented to a sub-committee of eminent obstetricians, who.

in every instance, considered all circumstances and conditions and then made their decision as to where the fault lay in each case. On the basis of this type of procedure an index of the preventability of maternal deaths, as well as an index of the extent to which individual practitioners, hospitals, midwives, or the ignorance or neglect of the woman herself are at fault in the untoward result, has been built up. The material is in the process of preparation for publication in monograph form.

DIABETES

A comprehensive survey of the diabetes problem in its various relationships has been made, particularly with a view of studying the causes of the apparently increasing mortality from this disease, and with a view of suggesting measures of a preventive character. This report will likewise be published in the near future.

NATIONAL CONFERENCE ON NOMENCLATURE OF DISEASE

This Committee has been instrumental in securing the formulation of a standard nosology by the National Conference on Nomenclature of Disease, which received the endorsement of many of the national medical and allied bodies. The preliminary draft of the nomenclature received a test in 16 hospitals for almost a year, and with the changes which practical experience indicated, it was published in permanent form by the Commonwealth Fund.

AIR POLLUTION EXHIBIT

For the purpose of impressing on the public mind the menace to health of impure air and dirty streets and to stress the possibility of preventing this nuisance as well as health hazard, an exhibit on Pure Air and Clean Streets was conducted for eight days beginning January 12th, under the joint auspices of the Committee on Public Health Relations and the Committee of Twenty on Street Conditions and Outdoor Cleanliness.

The exhibit consisted of graphs, charts, photographs, various scientific instruments of precision used in measur-

ing contamination; models of street cleaning apparatus, stoking devices, ventilating machines; as well as moving pictures depicting modern cleansing methods. The cooperation of city, state and federal authorities was secured as well as that of scientific organizations and the manufacturers of equipment. Among the contributors were:

The Mellon Institute of Pittsburgh	E. E. Free Laboratories
The National Conference Board on Sanitation	New York City Department of Health
The Stevens Institute	New York City Department of Sanitation
New York Meteorological Observatory	Singer Institute, Pittsburgh
U. S. Bureau of Mines, Pittsburgh Office	Bureau of Smoke Abatement, Rochester
U. S. Bureau of Mines, Washington Office	Bureau of Smoke Abatement, Detroit
U. S. Public Health Service	Bureau of Smoke Abatement, Boston
Port of New York Authority	Department of Safety, Cincinnati
New York State Department of Labor	Research Corporation, New York
	Medical Examiner, Newark

Dr. Conrad Berens, Dr. Alfred F. Hess, Dr. Wesley C. Bowers and Dr. Paul Klemperer contributed valuable slides, pathological material and charts from their collections.

The exhibit was attended by a great number of people with varied interests, some coming from considerable distances to visit it. The experience of the Committee with this exhibit has been placed at the disposal of other organizations in other localities which have asked for advice or assistance in organizing similar displays.

AUTOMOBILE ACCIDENTS

The work of the Sub-committee on Automobile Accidents has proceeded to the point where a tentative plan for the more thorough physical examination of applicants for drivers' licenses has been worked out with a view to eliminating the physically and psychologically unfit. The plan has been discussed with representatives of the State Bureau of Motor Vehicles who have expressed a great interest in it and have advised that the plan be tried out on various

groups such as the chauffeurs of taxi fleets, of trucking companies and other groups of commercial drivers, to determine its effectiveness in decreasing the accident rate. The present system of examination of applicants in the New York Police Department has been given considerable attention and an effort will be made to coordinate the work of the Committee with this and other existing systems.

COLLECTIVE PURCHASE OF HOSPITAL CARE

A joint committee representing the United Hospital Fund and the Hospital Conference of New York has been studying the subject of group purchase of hospital care which has been successfully in operation in Great Britain, as well as in certain communities in this country. The Committee on Public Health Relations has given study to the medical phases of the project which, owing to the present serious financial situation in which many of the private hospitals find themselves, coupled with the increasing difficulty of raising funds to meet deficits, is arousing considerable interest.

AUTOPSIES,

The understanding which has been reached with the Metropolitan Funeral Directors Association of this city through the joint Committee representing the Academy of Medicine and the New York Pathological Society, has had a marked effect in raising the percentage of autopsies in our hospitals. The effectiveness of the work is enhanced by the tactful manner with which the Sub-committee on Grievances has handled the difficulties encountered. Standards of autopsy technique have been drawn up by a special Sub-committee, and copies of these standards have been printed on large cards and have been placed in every autopsy room in the City. Courses of instruction for embalmers are to be established at Bellevue Hospital and a pamphlet prepared on the safeguarding of embalmers against infection.

CONTROL OF SALE OF HARMFUL SUBSTANCES

Two deaths resulting from the use of "Radithor," a water which contained radioactive salts, called attention to the need of more active control of popular advertisements and the unrestricted sale of poisonous substances. It is usually after tragedies have resulted from the consumption of such substances, that the public authorities become concerned.

Another example of a highly poisonous substance which was sold to the public as an effective depilatory, was "Kor-emlu Cream," whose active principle was thallium acetate. At the request of the Committee, Dr. Herman Goodman prepared a review of the literature on the subject which he subsequently published in the November 15, 1932, issue of the New York State Journal of Medicine. The Section of Dermatology and Syphilology of the Academy considered the matter at their meeting on March 4, 1932 and recommended that thallium acetate in depilatory creams be prohibited for the following reasons:

1. Thallium acetate causes falling of the hair only when it enters the circulation. It is not absorbed through the unbroken skin. The claim that it acts as a depilatory when applied externally is fraudulent.
2. Introduced into the system it produces grave symptoms and even death.
3. When applied to the face, the drug may enter the system through the mouth and cases of serious injury have been observed following the use of such creams.

These recommendations were brought to the attention of the Commissioner of Health, and at the meeting of the Board of Health in November, Section 127 of the Sanitary Code was amended to include thallium and its salts among the drugs prohibited as toilet preparations.

HANDBOOK ON PREVENTIVE MEDICINE

The friendly reception accorded the first edition (1929) of the Committee's book on Preventive Medicine together with the favorable reviews of it in the medical press, prompted the publishers, Paul B. Hoeber & Co., to issue a second edition in 1932. In its second edition three new

chapters have been added and a number of changes made throughout the text.

MISCELLANEOUS

Other matters which occupied the time and thought of the Committee must be but merely listed. Among these should be mentioned the prevalence of deafness in school children; the disinfection of school books; the problem of proper certification of teachers for sick leave and retirement in the Department of Education; the recommendations of the Committee on the Costs of Medical Care; the development of Saratoga Springs; the need of a contagious disease hospital in the Borough of the Bronx; the venereal disease clinics in New York; and the formulation of a standard ration for undernourished children.

A subject which takes up a great deal of the Committee's time each year is legislation bearing on various public health and cognate matters. Considerable attention was given to the need of crystallizing public opinion against the movement of securing legislation which would prohibit the use of dogs in scientific experimentation.

As in former years a great deal of time and thought was given last year to the City Budget, especially in relation to the Departments of Health, Hospitals, and Sanitation.

JAMES ALEX. MILLER,
Chairman.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

CLASSIFICATION OF FELLOWS

The qualifications for Fellowship in the Sections as recommended by the Committee have received the approval of the Sections and of the Council, and have been embodied in a revision of the Constitution and By-Laws of the Academy to be voted upon at the first Stated Meeting of the coming year.

TRAINING OF INTERNS AND SPECIALISTS

A study of the training of interns and specialists was first undertaken by the Committee in 1929, and has constituted one of the major activities of the Committee since that time. A subcommittee has prepared and presented a series of extended reports. The last report, presented to the Committee in December, entitled "Suggestions for Improving the Training of Interns and Specialists in the Hospitals of New York" was based upon a survey of conditions in fifteen important hospitals of Manhattan.

AMERICAN STUDENTS IN FOREIGN UNIVERSITIES

The increasing number of American citizens who are studying medicine abroad, at the present time numbering approximately 2000, has created a problem of real difficulty and serious import. Several years ago the Academy brought to the attention of various interested agencies the fact that many foreign countries do not permit graduates of medical schools in the United States to practice medicine in their countries and also that the graduates of many foreign medical schools have made a lamentable showing in the State Board examinations in the United States. The failure of the applicant is a source of great embarrassment to him and his four years of work in a foreign medical school have entailed a great loss of time and money.

In December the Committee presented a resolution which was passed by the Council at its meeting of the same month. The resolution reads as follows:

"Resolved, that the Council of The New York Academy of Medicine learns with great satisfaction that the Council on Education and Hospitals of the American Medical Association, the Federation of State Medical Boards, the Association of American Medical Colleges and other organizations, have undertaken serious consideration of the problem of American students in foreign medical schools and desires to offer its cooperation

in so far as it may to the end that a satisfactory solution be obtained."

THE ALEXANDER COCHRAN BOWEN SCHOLARSHIP

In 1932 there were two scholarships awarded for a year's foreign study in clinical medicine and surgery, one to Dr. Ralph W. Gause, intern of the Roosevelt Hospital and graduate of Harvard Medical School, and one to Dr. Asher W. White, intern in the Cornell Division of New York Hospital and graduate of the University of Minnesota. The selections were made by a subcommittee after personal interviews with eleven applicants.

BULLETIN OF THE ACADEMY

A fifty per cent reduction in the budget allotment has necessitated the publishing of a Bulletin of one-half the size of previous years. Consequently no effort has been made to carry out the recommendation of the Committee that the Bulletin be enlarged and developed into a high-class medical publication. However, with additional funds to be expected from a few pages of advertisements, it may shortly be possible to restore the Bulletin to its size of former years.

ACADEMY PROGRAMS

Meetings: The Program Committee has continued to cooperate with the advisory committees and officers of the several Sections in arranging programs for the Section and Stated Meetings of the year. The second Stated Meeting of each month has been presented by the Harvey Society. The programs of other Stated Meetings have included the Anniversary Discourse, the Carpenter Lecture, the Biggs Lecture and four symposia arranged in cooperation with the Sections of Dermatology and Syphilology, Surgery, Neurology and Psychiatry and Pediatrics.

Lectures: The Seventh Series of Friday Afternoon Lectures on subjects of special interest to the practitioner was

arranged to include twenty lectures. Attendance at these lectures has steadily increased from year to year, the average attendance for the current year being nearly 250.

The Carpenter Lecture for the year was included in the program of the Graduate Fortnight as was also the Bulkley Lecture.

Attendance at Stated Meetings averaged 239, not including the Harvey Society meetings. A comparison of attendance at Stated Meetings for the past five years is as follows:

1928, average attendance	216
1929, average attendance	271
1930, average attendance	218
1931, average attendance	184
1932, average attendance	239

Affiliated Societies: The New York Pathological Society and the New York Roentgen Society have presented programs in affiliation with the Academy. The Society for Experimental Biology and Medicine has held its meetings under the auspices of the Academy.

GRADUATE FORTNIGHT

The Fifth Annual Graduate Fortnight was held October 17 to 28. As in previous years the Fortnight was arranged to include afternoon clinics in important hospitals, evening meetings and an exhibit. The subject chosen was "Tumors."

Eighteen hospitals cooperated in presenting afternoon clinics on various phases of the general subject. Ten evening meetings were held at the Academy, one of which was arranged in cooperation with the Medical Society of the County of New York. Six Sections gave up their October meetings in order that the evenings might be free for Graduate Fortnight programs.

The exhibit covered all of the main phases of neoplastic diseases. A total of seventy-eight separate exhibits (many

from distant cities), were shown, the work of 116 exhibitors. All available rooms and hallways of the Academy were made use of including the collation room on the first floor, three rooms on the second floor and four rooms on the fifth floor. In the Library was shown a large exhibit of important books and memorabilia concerning cancer. Special demonstrations of fresh pathological material were held on nine evenings and were particularly well attended.

All features of the Fortnight attracted large attendances. Over 800 physicians applied for tickets to the clinics, applications coming from 21 states besides New York. Physicians registered from California, Florida, Illinois, Michigan, Minnesota, Missouri, Texas, West Virginia, Wisconsin and Canada.

USE OF THE PHARMACOPEIA IN HOSPITALS AND PRIVATE PRACTICE

The Committee has been concerned in regard to the wide use of proprietary preparations in place of well recognized pharmacopeial drugs, and the inability of interns to use intelligently these standard drugs in practice and particularly to write proper prescriptions for them. A subcommittee was appointed to study the subject and to report as to feasible methods of stimulating interest among practicing physicians and hospitals.

INSTITUTE OF PROBATION

The Committee was asked by Judge Collins of the Court of General Sessions to interest itself in a proposed Institute of Probation. A subcommittee recorded its approval of the Institute and the Committee recommended to the Council that a resolution be passed to this effect.

BUREAU OF CLINICAL INFORMATION

The work of the Bureau has been carried on in much the same manner as has been noted in previous reports. The Bureau is now generally known throughout the coun-

try as a central meeting place where visiting medical men may obtain information regarding all medical activities of this city as well as information regarding opportunities for postgraduate medical study in other cities.

The number of visiting physicians who have registered in the Bureau has decreased considerably during the year, especially foreign physicians. Inquiries by mail concerning opportunities for postgraduate medical study have not materially decreased, and miscellaneous inquiries by telephone relating to various phases of the practice of medicine continue to increase in number.

Publications: The Daily Bulletin of medical activities of the day in New York City posts lectures, meetings, conferences, ward rounds and operative clinics to which visiting physicians are welcome. Efforts are being made to increase the circulation of the bulletin among New York physicians.

Approved lists of non-operative clinics, of clinical and pathological conferences and of ward rounds have been revised, printed and distributed.

The booklet entitled "Opportunities for Postgraduate Medical Study in New York City" was first published by the Society for the Advancement of Clinical Study as a list of hospitals and fixed clinics. Its publication has been carried on by the Committee since 1924 and has been revised and reprinted from year to year. The revision for 1932 which was published in September has been widely circulated. Besides announcements of the Academy and of the Bureau of Clinical Information, the booklet lists the various opportunities offered including approved courses, residencies and internships, non-operative clinics, clinical and pathological conferences and hospital rounds.

The files of information regarding opportunities for postgraduate medical study in other cities of the United States and foreign countries are constantly being added to, revised and in other ways kept up to date.

During the year the Committee has suffered the loss through death of three of its members—Dr. Michael Os-nato, Dr. Leo Kessel and Dr. Rolfe Floyd.

Miss Grace Carstensen who had been Executive Secretary of the Committee and in charge of the Bureau of Clinical Information since 1924, severed her connection with the Academy in September.

HARLOW BROOKS,
Chairman.

REPORT OF THE COMMITTEE ON SECTIONS

The average attendance at Section meetings during the year and the attendance during the two previous years is shown in the following table:

	1930	1931	1932
Section of Dermatology and Syphilology	118	123	122
Section of Surgery	121	92	102
Section of Neurology and Psychiatry	180	199	280
Section of Pediatrics	205	165	169
Section of Ophthalmology	120	120	275
Section of Medicine	213	338	235
Section of Genito-Urinary Surgery	119	242	171
Section of Orthopedic Surgery	89	78	199
Section of Obstetrics and Gynecology	110	198	227
Section of Historical and Cultural Medicine	89	80	67
*Section of Otology	115	133	
*Section of Laryngology and Rhinology	288	160	
Section of Otolaryngology			184

The Committee on Sections, which is composed of the Chairmen of the scientific Sections of the Academy with one of the Vice-Presidents as its Chairman, has functioned in cooperation with the Program Committee. It has assisted the Sections and their Advisory Committees in planning programs for Stated Meetings of the Academy and in carrying on certain other Section activities.

FREDERICK TILNEY,
Chairman.

*At their October 1931 meeting the Sections of Otology, Laryngology and Rhinology combined and became known as the "Section of Otolaryngology."

REPORT OF THE COMMITTEE ON MEDICAL JURISPRUDENCE

The Committee on Medical Jurisprudence of the New York Academy of Medicine during the first six months of the year devoted itself almost entirely to securing the support and creating an harmonious condition between organizations interested in the projects as already outlined by the medical committee. As a result of these efforts meetings have been held with Committees of the Bar Association, with the judges of the Court of General Sessions, representatives of the Department of Correction of New York State and other allied departments. These committees and subcommittees have worked in an enthusiastic manner and more than ever before with a united spirit.

As a result of this early effort we are ready to report that the end of the year found us with definite and concrete formulation of new laws and revisions of old laws in which the question of insanity was a factor. These bills are ready to be presented to the State Legislature and they have at the present time the backing of important organizations. We are continuing however to increase the number of sources that are available for the support of these bills. These bills are:

1. The qualifications determining the certified psychiatrist.
2. Section 658: To amend the code of criminal procedure in relation to the inquiry into the insanity or mental condition of a defendant before or during the trial or before sentence.
3. Section 308: To amend the code of criminal procedure in relation to employment of experts in a criminal case when defendant is not financially able to so employ.
4. Section 836: To amend the code of criminal procedure in relation to the proceedings when a person in confinement appears to be insane or a mental defective.

It would be too lengthy to make a clear analysis of the importance of these changes but in general they give to the physician the position of dignity he is entitled to by virtue of his profession. They correct archaic legal procedure in cases involving the use of a psychiatrist. In

some instances they clarify present contrary statutes. These changes are in no way to be construed as the ultimate result of the committees' activities nor have they solved the question of law and insanity, but all the members of the various committees and the authorities agree that it is a constructive step in the right direction. Changes in law, no matter how progressive and constructive they may be, are always met with opposition, known and unknown. The committees have taken this into consideration and active steps have been instituted to secure the support of organizations and departments that are in some way interested in these laws.

We wish to express our appreciation for the support of the Bar Association, the Department of Correction of New York State and numerous other associations and individuals that aided the committee. We wish to express particular appreciation to the judges of the Court of General Sessions and special reference must be made to the untiring efforts of Judge Collins, chairman of their subcommittee.

The spirit, as already stressed, which exists between these committees is of such a nature that they all have expressed the desire that they still continue to function.

ISRAEL STRAUSS,
Chairman.

REPORT OF THE MEDICAL INFORMATION BUREAU

During the calendar year of 1932, the Medical Information Bureau received and handled a total of 3202 inquiries. This number represents an approximate increase of 25 per cent over the number of inquiries received during the previous year.

. NEWSPAPER INQUIRIES

Eleven per cent of the inquires came from the newspapers. Practically every newspaper in Greater New York

made use of the Bureau as a source of medical information, for review of medical news items received by them from other sources, for feature material, and for advice on proffered advertisements of a medical or quasi-medical nature.

ASSOCIATED PRESS ARTICLES

During the year of 1932 the Bureau issued 313 daily columns to the Associated Press. These were published in approximately 400 newspapers throughout the country.

MEDICAL RELEASES

The Medical Information Bureau issued 27 medical releases on important medical subjects. Included among these releases were the presidential addresses of the President of the Academy and the President of the Medical Society of the County of New York and the Thomas W. Salmon Memorial Lectures. A number of the Graduate Fortnight papers were also abstracted and released to the press.

ASSISTANCE TO NATIONAL AND LOCAL HEALTH ORGANIZATIONS

During the year, the Medical Information Bureau assisted a number of national and local public health organizations in promoting their educational activities. Notable among these were—

The National Tuberculosis Association
 The American Heart Association
 The American Society for the Control of Cancer
 The First and the Second District Dental Societies
 The Maternity Center Association

SOCIAL AND COMMERCIAL ORGANIZATIONS

Eighty-four per cent of the total number of inquiries which the Medical Information Bureau received and handled came from social and commercial agencies and from individuals, the latter including many physicians.

The National Better Business Bureau made extensive use of the information service and twenty-five inquiries were received from a variety of advertising agencies.

RADIO

Three-hundred-seventy-five radio talks were scheduled and delivered during 1932, under the supervision of the Medical Information Bureau. These talks were given over the major stations in New York City.

During the American Congress of Physical Therapy, seven national and six local broadcasts were arranged and supervised. Fifty-eight broadcasts were arranged for the Early Diagnosis Campaign in combating tuberculosis and seventy-two talks during the Seal Sale Campaign. In this we had the cooperation of every tuberculosis agency. Throughout the year, special broadcasts were arranged for The American Red Cross, American Society for the Control of Cancer, Henry Street Visiting Nurses, Children's Welfare Federation, New York League for the Hard of Hearing and the National Society for the Prevention of Blindness.

THE ACADEMY RADIO HOUR

In May, 1932, the Academy hour was established over station WABC. Fellows of the Academy presented weekly addresses on timely medical subjects over this station, which has a network reaching to practically every part of the country. During 1932, thirty-six addresses were given during the Academy Hour.

BROCHURE ON RADIO

At the suggestion of a number of Fellows of the Academy, a brochure outlining a technique for the preparation and delivery of radio talks was prepared by the Medical Information Bureau for the use of the Fellows.

The Academy received the cooperation and assistance of the New York Tuberculosis and Health Association in conducting its radio activities.

ANNUAL PRESS DINNER

In June the Annual Press Dinner was held at the Academy of Medicine. Dr. Orrin S. Wightman, as in former years, generously served as host. The guest speaker of the evening was Mr. Heywood Broun.

COOPERATION WITH MEDICAL SOCIETY OF THE COUNTY OF
NEW YORK

Throughout the year, the Medical Information Bureau has served the Medical Society of the County of New York in presenting its activities to the press.

The Bureau has continued to receive splendid cooperation from its consultants.

JOHN J. MOORHEAD,
Chairman.

REPORT OF OFFICES AND MEETINGS AT THE
ACADEMY

During the year the following organizations have maintained their offices in the Academy building:

American Otological Society, Inc.
First District Dental Society
Medical Society of the County of New York
Medical Society of the State of New York
National Committee on Maternal Health, Inc.
New York Physicians' Mutual Aid Association
New York Society for the Relief of Widows and Orphans of Medical Men
New York State Journal of Medicine

Meetings have been held in the Academy building by the following organizations:

American Academy of Pediatrics
American Hungarian Medical Association
American Jewish Physicians' Committee
American Society of Regional Anesthesia
American Urological Association, New York Society
Association of Italian Physicians in America
Conferences on Physical Therapy in Traumatic Conditions
First District Dental Society, General and Sections
German Medical Society
Harlem Dental Society, General and Committee
Health Education Lectures
Joint Diseases Hospital

Medical Association of the Greater City of New York
 Medical Board of the Montefiore Hospital
 Medical Society of the County of New York, General
 Medical Society of the State of New York, Committee
 National Conference on Costs of Medical Care
 New York Neurological Society
 New York Physical Therapy Society
 New York Society of Anesthetists
 New York Society for Clinical Psychiatry
 New York Society of Graduates in Medical Gymnastics and Massage
 New York Society for the Relief of Widows and Orphans of Medical Men
 New York Society for Thoracic Surgery
 New York Surgical Society
 New York Tuberculosis and Health Association, Committee
 Pan American Medical Association, New York Chapter
 Society of Medical Jurisprudence
 Society of Plastic and Reconstructive Surgery
 Spanish American Medical Society
 Speedwell Society
 Sydenham Hospital
 Veterinary Medical Association of New York City
 Women's Medical Association of New York City

Accommodations, free of charge, have been granted during the year to:

American Public Health Association, Health Institute
 American Society for the Control of Cancer
 Hermann M. Biggs Memorial Lecture
 Governors' Health Commission
 Harvey Society
 Manhattan State Hospital, Medical Board of Visitors
 Milbank Memorial Fund, Conferences
 New York Pathological Society
 New York Roentgen Society
 New York Meeting of the Society for Experimental Biology and Medicine
 New York State Board of Medical Examiners, Medical Grievance Committee
 Thomas W. Salmon Memorial Lecture

MEMORIAL MEETING

DR. GRAHAM LUSK

OBITUARY 1932

FELLOWS

Bandler, Samuel W.	Leshure, John
Bartholomew, Henry S.	Losey, Ray Robinson
Bingham, Anne Tefft	Lusk, Graham
Bryan, William	McLean, Stafford
Burt, Stephen Smith	Meyer, Willy
Callan, Peter A.	Miller, Frank E.
Canfield, R. Bishop	Munroe, George E.
Cilley, Arthur H.	Murphy, Deas
Comstock, George F.	Newman, Emanuel D.
Driscoll, William Phelan	Osnato, Michael
Floyd, Rolfe	Pritchard, William B.
Graeser, Herman R. A.	Scott, Richard J. E.
Harrigan, Anthony H.	Seaman, Louis L.
Hibbs, Russell A.	Starr, M. Allen
Illoway, Henry	Terriberry, Joseph F.
Kent, James M.	Tracy, Ira Otis
Kessel, Leo	Turck, Fenton B.
King, Edward A.	Waller, Newton B.
Klein, Eugene	Wertheimer, Herbert G.
Leale, Charles A.	Yankauer, Sidney

HONORARY FELLOWS

Billings, Frank	Keen, William W.
Cheyne, Sir William Watson	Thayer, William Sydney

Fellows 40

Honorary Fellows 4

FELLOWS AND ASSOCIATE FELLOWS ELECTED IN 1932

FELLOWS

Amsden, George S.	Gregg, Donald
Apfelberg, Isidor	Gresser, Edward Bellamy
Appelbaum, Emanuel	Hamilton, Samuel W.
Arnheim, Ernest E.	Hartung, Edward F.
Atkinson, Walter S.	Hayes, James Joseph
Auster, Lionel Sandler	Heller, Nathan B.
Beisler, Simon Anthony	Hicks, Hugh M.
Bishop, Louis F., Jr.	Jacobi, Mendel
Blakeslee, George A.	Jerskey, Abraham
Blanton, Smiley	Keil, Frank Conrad
Bolduan, Charles Frederick	Kern, E. Clarence
Bowles, Ray McCune	Kleegman, Sophia J.
Bozsán, Eugene John	Krieger, William Andrew
Brown, Wade H.	Kubie, Lawrence S.
Calvelli, Eugene	Landsteiner, Karl
Cheney, Clarence O.	Leader, Sidney D.
Chobot, Robert	Levene, Phoebus A.
Churchman, John Woolman	Lewi, Maurice J.
Craig, John Dorsey	Lewis, George M.
Currier, Gilman Sterling	Lewis, Jacques M.
Davidson, Harold B.	Lipsky, Merrill D.
Davis, John Staige	Lubash, Samuel
Delzell, William Robert	Mackenzie, Locke
Denison, Ward C.	McKeown, Hugh S.
Denneen, Edward V.	McMaster, Philip D.
de Victoria, Cassius L.	Marmorston-Gottesman,
de Vries, John K.	Jessie
Dooley, Emmett A.	Maynard, Edwin Post, Jr.
Fanoni, Vincenzo	Meeker, Louise H.
Fowler, Edmund Prince	Mencher, William H.
Francis, Thomas, Jr.	Minsky, Henry
Friedman, Jacob	Monash, Samuel
Galland, Walter I.	Muehleck, George E.
Gillette, David F.	Nelms, Homer L.
Gregg, Alan	Nemet, Geza

Northington, Page	Stanley-Brown, Margaret
Olitsky, Peter K.	Stein, Herbert Edward
Orton, Samuel Torrey	Ten Broeck, Carl
Parran, Thomas, Jr.	Tenenbaum, Joseph
Patterson, Howard A.	Tetelman, Michael M.
Pyle, Louis Apgar	Treves, Norman
Rappleye, Willard C.	Trible, George Barnet
Rhoads, Cornelius P.	Twinem, Francis Patton
Richardson, Ralph A.	Van Orden, Thomas D.
Riley, Edward J.	Vero, Frank.
Ringer, Michael	Warren, Arthur Fulton
Riordan, Timothy J.	Watson, William L.
Roth, Irving R.	Webster, Jerome P.
Sawyer, Wilbur A.	Weise, Ellwood C.
Schmidt, Otto V. M.	Weiss, Harry
Selig, Seth	White, William Charles
Seward, Jackson A.	Wilson, Margaret Barclay
Sheplar, Adele E.	Wortis, S. Bernard
Silver, Henry	Wright, Irving Sherwood
Sloan, Lawrence Wells	Wurzbach, Frederick A., Jr.
Slocum, C. Jonathan	Yaguda, Asher
Smetana, Hans	Zilboorg, Gregory
Standish, E. Myles	Zucker, Morris

ASSOCIATE FELLOWS

Benedict, Stanley R., Ph.D.	Kahn, Morton C., Ph.D.
Brand, Erwin, Ph.D.	Landis, Carney, Ph.D.
Cahn, Lester R., D.D.S.	Northrop, John H., Ph. D.
Goebel, Walther F., Ph.D.	Osterhout, W. J. V., Ph.D.
Goldforb, Abraham J., Ph.D.	Van Slyke, Donald D., Ph. D.

Elected in 1932: Fellows, 116, Associate Fellows, 10

COMPLETE ACADEMY FELLOWSHIP

1932

RESIDENT FELLOWS

1913 Abbott, Theodore J.	1924 Andresen, Albert F. R.
1901 Abraham, Joseph H.	1923 Andrews, George C.
1910 Abrahamson, Isador	1931 Anopol, George
1917 Abramowitz, E. Wm.	1932 Apfelberg, Isidor
1921 Adair, Frank Earl	1932 Appelbaum, Emanuel
1901 Adams, Charles F.	1909 Aranow, Harry
1905 Adams, Warren S.	1918 Armstrong, Arthur S.
1916 Addoms, Lewis P.	1924 Armstrong, Donald B.
1909 Agatston, Sigmund A.	1922 Armstrong, Edgar B.
1907 Albee, Fred H.	1917 Armstrong, Edward McP.
1928 Aldridge, Albert H.	1932 Arnheim, Ernest E.
1918 Alexander, Lawrence D.	1931 Arnovich, Julius
1905 Alger, Ellice M.	1928 Aronson, Louis S.
1920 Allen, Frederick M.	1889 Aronson, Moses
1931 Allen, Philip Daly	1913 Asch, Joseph Jefferson
1930 Allen, Theophilus Powell	1919 Aschner, Paul W.
1881 Allen, Thomas H.	1900 Ashley, Dexter D.
1929 Allison, Benjamin Roy	1928 Ashton, Leslie Orrel
1911 Almgren-Dederer, Ebba E.	1930 Atchley, Dana W.
1928 Almour, Ralph	1921 Atkins, Richard T.
1930 Alofsin, Louis M.	1898 Atkinson, James Wm.
1921 Altman, Emil	1932 Atkinson, Walter S.
1930 Amberson, J. Burns, Jr.	1919 Atonna, Carmelo
1915 Ames, Thaddeus H.	1910 Auchincloss, Hugh
1915 Amey, J. Willis	1912 Auerbach, Julius
1932 Amsden, George S.	1932 Auster, Lionel Sandler
1918 Amster, J. Lewis	1909 Avery, Oswald T.
1931 Andersen, Dorothy H.	1918 Babcock, James W.
1931 Anderson, Alan R.	1918 Baehr, George
1918 Anderton, Walter P.	1916 Bailey, Cameron V.
	1901 Bainbridge, William Seaman
	1918 Bainton, Joseph H.

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| 1904 Baker, S. Josephine | 1911 Beekman, Fenwick |
| 1921 Baketel, H. Sheridan | 1905 Beer, Edwin |
| 1924 Bakwin, Harry | 1906 Begg, Colin L. |
| 1900 Baldwin, Helen | 1932 Beisler, Simon |
| 1927 Baldwin, Horace S. | Anthony |
| 1927 Balensweig, Irving | 1905 Beling, Christopher C. |
| 1907 Ballin, Milton J. | 1923 Bell, Alfred Lee |
| 1914 Bancroft, Frederic W. | Loomis |
| 1914 Bandler, Clarence G. | 1904 Bell, George H. |
| *1901 Bandler, Samuel W. | 1897 Bell, J. Finley |
| 1908 Bang, Richard T. | 1925 Bell, Samuel Dennis |
| 1924 Banowitch, Morris M. | 1918 Beller, Abraham J. |
| 1926 Barach, Alvan LeRoy | 1930 Bendove, Raphael A. |
| 1914 Barber, W. Howard | 1928 Benson, Reuel A. |
| 1929 Barkhorn, Henry | 1926 Benton, Nelson K. |
| Charles | 1916 Berens, Conrad |
| 1930 Barnard, Margaret | 1900 Berg, Albert A. |
| Witter | 1927 Berg, Benjamin N. |
| 1930 Barnes, William J. | 1890 Berg, Henry W. |
| 1908 Barringer, Benjamin | 1923 Bergamini, Herbert |
| S. | M. |
| 1908 Barringer, Emily | 1928 Berkowitz, Bernard B. |
| Dunning | 1926 Berliner, Milton L. |
| 1924 Barrows, David Nye | 1928 Bernheim, Alice R. |
| 1913 Barshell, Samuel | 1924 Bernstein, Max |
| 1930 Barthel, Else Anna | 1925 Berry, Frank B. |
| 1909 Bartlett, Frederic H. | 1901 Bierhoff, Frederic |
| 1899 Baruch, Herman B. | 1931 Bierman, William |
| 1913 Bass, Murray H. | 1895 Biggs, George P. |
| 1908 Bassler, Anthony | 1928 Biloon, Sol |
| 1914 Bastedo, Walter A. | 1928 Binger, Carl A. L. |
| 1919 Bauman, Louis | *1920 Bingham, Anne Tefft |
| 1920 Beach, Bennett S. | 1928 Binkley, George E. |
| 1918 Bebb, Rose Anne | 1927 Bishop, F. Warner |
| 1912 Bechet, Paul E. | 1893 Bishop, Louis F. |
| 1921 Beck, Alfred Charles | 1932 Bishop, Louis F., Jr. |
| 1914 Beck, August Leo | 1930 Bishop, Philip George |
| 1927 Beck, David | Crosbie |

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| 1928 Bishop, William H. | 1931 Bradner, Renfrew |
| 1903 Bissell, Dougal | 1914 Bradshaw, William M. |
| 1915 Black, Florence A. | 1918 Brandaleone, Joseph |
| 1910 Blackwell, Hugh B. | 1931 Brandon, William R. |
| 1932 Blakeslee, George A. | 1929 Brandt, Murray |
| 1910 Blank, Marcus I. | Lampel |
| 1932 Blanton, Smiley | 1888 Brannan, John W. |
| 1919 Blatteis, Simon R. | 1908 Braun, Alfred |
| 1896 Blodgett, Frank J. | 1930 Breidenbach, Lester |
| 1927 Bloom, David | 1917 Brennan, Robert E. |
| 1899 Bloom, Selina | 1930 Brennan, Thomas M. |
| 1916 Blum, Theodor | 1918 Brenner, Edward C. |
| 1927 Blumenthal, J. Leon | 1924 Brennglass, Joachim |
| 1913 Blumgart, Leonard | 1897 Brettauer, Joseph |
| 1916 Blumgarten, Aaron S. | 1889 Brewer, George E. |
| 1921 Boas, Ernst P. | 1930 Brickner, Richard M. |
| 1918 Bodenheimer, Milton | 1927 Bridges, Milton A. |
| 1924 Boehm, Joseph L. | 1895 Brien, William M. |
| 1926 Boenke, Rudolph | 1930 Brighton, George |
| 1926 Boese, William H. | Renfrew |
| 1917 Boettiger, Carl | 1912 Brill, Abraham A. |
| 1925 Bohrer, John V. | 1926 Broadwin, Isra T. |
| 1884 Boldt, Hermann J. | 1927 Brock, Samuel |
| 1932 Bolduan, Charles | 1904 Brodhead, George L. |
| Frederick | 1904 Brooks, Harlow |
| 1916 Bonime, Ellis | 1922 Brown, Aaron |
| 1907 Bookman, Arthur | 1912 Brown, Ethel Dotv |
| 1918 Bookman, Milton R. | 1895 Brown, James Spencer |
| 1920 Boorstein, Samuel W. | 1901 Brown, Samuel A. |
| 1885 Booth, J. Arthur | 1932 Brown, Wade H. |
| 1927 Boots, Ralph H. | 1931 Bruce, Gordon M |
| 1916 Bortone, Frank | 1918 Bruder, Joseph |
| 1915 Bowers, Wesley C. | 1920 Brundage, Walter H |
| 1932 Bowles, Ray McCune | *1904 Bryan, William |
| 1916 Boyd, Carlisle S. | 1929 Buckley, Robert |
| 1925 Boynton, Perry S. | 1910 Buckmaster, Clarence |
| 1932 Bozsán, Eugene John | W. |
| 1907 Bradford, Stella S. | 1931 Buckstein, Jacob |

1909 Buerger, Leo	1922 Carp, Louis
1910 Bugbee, Henry G.	1921 Carr, Frank C.
1927 Bull, David C.	1886 Carr, Walter Lester
1928 Bullard, Edward A.	1928 Carrel, Alexis
1907 Bullowa, Jesse G. M.	1925 Carter, Rupert F.
1931 Bullwinkel, Henry G.	1904 Carter, William W.
1927 Bunzel, E. Everett	1931 Carty, John Russell
1926 Burbank, Reginald	1920 Casamajor, Louis
1887 Burch, T. Hamilton	1915 Cash, Stanmore L.
1930 Burchell, Samuel C.	1931 Cashman, George A.
1910 Burdick, Carl G.	1906 Cassebeer, Henry A.
1915 Burk, Samuel B.	1905 Cassell, James W.
1886 Burke, Martin	1910 Caturani, Michele G.
1908 Burrows, Waters F.	1921 Cave, Henry W.
*1886 Burt, Stephen Smith	1910 Cecil, Russell L.
1911 Busby, Archibald H.	1908 Chace, Arthur F.
1917 Butler, Eustace C.	1920 Chalmers, Thomas C.
1920 Butterfield, Paul M.	1931 Chaney, L. Beverley
1928 Buvinger, Charles W.	1886 Chapin, Henry D.
1905 Byard, Dever S.	1920 Chaplin, Hugh
1929 Byrd, Charles Wise	1904 Chard, Marie Louise
1914 Byrne, Joseph	1914 Chargin, Louis
1891 Cabot, John	1924 Charlton, Herbert
1927 Caffey, John P.	Richard
1922 Cahill, George F.	1922 Chase, Herbert C.
1885 Caillé, Augustus	1932 Cheney, Clarence O.
1918 Caldwell, William E.	1915 Cherry, Thomas H.
1920 Calhoun, William C.	1896 Chetwood, Charles H.
*1888 Callan, Peter A.	1926 Chickering, Henry T.
1914 Callison, James G.	1924 Chilian, Stephen A.
1932 Calvelli, Eugene	1932 Chobot, Robert
1898 Camac, Charles N. B.	1932 Churchman, John
1928 Campbell, Meredith F.	Woolman
1924 Cannon, A. Benson	*1901 Cilley, Arthur H.
1928 Carleton, Sprague	1904 Clark, J. Bayard
1921 Carlisle, John H.	1896 Clark, L. Pierce
1902 Carlisle, Robert J.	1922 Clark, Raymond
1921 Carlucci, Gaston A.	1879 Cleveland, Clement

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| 1922 Cleveland, Mather | 1923 Cornwall, Leon H. |
| 1911 Clock, Ralph O. | 1910 Corscaden, James A. |
| 1894 Coakley, Cornelius G. | 1898 Corwin, Theodore W. |
| 1931 Coburn, Alvin F. | 1921 Coryell, Clarence C. |
| 1917 Coca, Arthur F. | 1929 Coryllos, Pol N. |
| 1892 Coffin, Lewis A. | 1928 Cosgrove, Samuel A. |
| 1927 Cohen, Frances | 1926 Coughlan, James F. |
| 1924 Cohen, Harry | 1922 Courten, Henry C. |
| 1921 Cohen, Ira | 1925 Cowett, Max P. |
| 1905 Cohen, Martin | 1924 Cowles, Henry Clay |
| 1928 Cohen, Sam'l A. | 1931 Cracovaner, Arthur J. |
| 1910 Cohn, Alfred E. | 1922 Craig, C. Burns |
| 1890 Cohn, Felix | 1927 Craig, Howard Reid |
| 1926 Cohn, Sidney | 1932 Craig, John Dorsey |
| 1910 Cole, Lewis Gregory | 1924 Craig, Stuart L. |
| 1909 Cole, Rufus I. | 1908 Cramp, Walter C. |
| 1915 Coleman, Joseph | 1921 Crampton, C. Ward |
| 1904 Coleman, Warren | 1926 Crane, Claude G. |
| 1928 Coler, Eugene S. | 1925 Craver, Lloyd F. |
| 1925 Coley, Bradley L. | 1910 Crigler, Lewis W. |
| 1892 Coley, William B. | 1900 Crispin, Antonio M. |
| 1910 Colie, Edward M., Jr. | 1912 Crohn, Burrill B. |
| 1925 Collings, Clyde W. | 1921 Cross, Frank B. |
| 1905 Collins, Charles F. | 1927 Crossman, Lyman |
| 1898 Collins, Howard D. | Weeks |
| 1892 Collins, Joseph | 1926 Crump, Armistead C. |
| 1927 Colonna, Paul C. | 1922 Cudmore, John H. |
| 1922 Colp, Ralph | 1901 Culbert, William L. |
| 1927 Combes, Frank C., Jr. | 1927 Cumbler, George W. |
| 1900 Conner, Lewis A. | 1921 Cunningham, W. F. |
| 1927 Connery, Joseph E. | 1915 Curtin, Thomas H. |
| 1905 Connors, John F. | 1923 Cussler, Edward |
| 1908 Cooke, Robert A. | 1904 Cutler, Colman W. |
| 1927 Cooney, John D. | 1923 Cutler, Condict W., Jr. |
| 1922 Coonley, Frederick | 1923 D'Albora, John B. |
| 1930 Cooper, Henry S. F. | 1931 D'Alton, Clarence J. |
| 1927 Cornell, Nelson W. | 1886 Dana, Charles L. |
| 1927 Cornell, Van Alstyne | |

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| 1922 Dannreuther, Walter T. | 1879 Dennis, Frederic S. |
| 1922 Danzer, Charles S. | 1916 Denno, Willard J. |
| 1931 Danzis, Max | 1916 Denzer, Bernard S. |
| 1928 Darlington, Charles G. | 1931 Depping, Charles W. |
| 1904 Darlington, Thomas | 1922 DeSanctis, Adolph George G. |
| 1908 Darrach, William | 1915 DeSanctis, Nicholas M. |
| 1931 Davidoff, Leo M. | 1917 Detwiller, Albert K. |
| 1932 Davidson, Harold B. | 1932 deVictoria, Cassius L. |
| 1926 Davidson, Leonard T. | 1926 Devlin, Joseph A. |
| 1924 Davidson, Louis R. | 1932 deVries, John K. |
| 1931 Davidson, Morris | 1921 deYoanna, Gaetano |
| 1899 Davis, A. Edward | 1918 Diamond, Joseph S. |
| 1909 Davis, George E. | 1891 Dickinson, Robert L. |
| 1932 Davis, John Staige | 1915 Dieffenbach, Richard H. |
| 1920 Davis, Thomas K. | 1890 Dillingham, Frederic H. |
| 1930 Davis, T. Wallis | 1924 Dineen, Paul A. |
| 1930 Davison, Charles | 1917 Diner, Jacob |
| 1922 Dean, Archie L., Jr. | 1922 di Palma, Salvatore |
| 1928 De Bellis, Hannibal | 1906 Ditman, Norman E. |
| 1904 de Forest, Henry P. | 1906 Dixon, George S. |
| 1924 de Graffenried, Anthony F. | 1929 Dochez, Alphonse Raymond |
| 1928 de La Chapelle, Clarence E. | 1922 Dodd, Raymond C. |
| 1929 Delatour, Beeckman J. | 1927 Doherty, Wm. Brown |
| 1880 Delavan, D. Bryson | 1885 Dold, William E. |
| 1932 Delzell, William Robert | 1921 Donaldson, Blake F. |
| 1890 Dench, Edward B. | 1930 Donehue, Francis McG. |
| 1908 Denenholz, Aaron | 1924 Donnet, John V. |
| 1902 Denig, Rudolf | 1928 Donovan, Daniel J. |
| 1932 Denison, Ward C. | 1927 Donovan, Edward J. |
| 1932 Denneen, Edward V. | 1932 Dooley, Emmett A. |
| 1927 Dennen, Edward H. | 1920 Doran, William T. |
| 1908 Dennett, Roger H. | 1888 Dorning, John |

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| 1928 D'Oronzio, Joseph B. | 1922 Eggston, Andrew A. |
| 1891 Doty, Alvah H. | 1931 Eglee, Edward P. |
| 1904 Dougherty, Daniel S. | 1927 Ehrencloou, Cora M. |
| 1905 Douglas, John | 1928 Eidson, Joseph P. |
| 1894 Douglass, H. Beaman | 1891 Einhorn, Max |
| 1923 Dourmashkin, Ralph L. | 1924 Eisberg, Harry B. |
| 1900 Dow, Edmund LeRoy | 1906 Eisenberg, Isidore C. |
| 1923 Dowd, H. Laurence | 1904 Eising, Eugene H. |
| 1905 Downey, Martin | 1906 Eliot, Ellsworth, Jr. |
| 1911 Draper, George | 1925 Eller, Joseph J. |
| *1927 Driscoll, Wm. Phelan | 1921 Elliott, Edward S. |
| 1910 Du Bois, Eugene F. | 1886 Elliott, George R. |
| 1911 Du Bois, Francis E. | 1921 Elmendorf, Ten Eyck |
| 1919 Du Bois, Phebe Lott | 1897 Elsberg, Charles A. |
| 1926 Du Bois, Robert O. | 1928 Elser, William |
| 1917 Dudley, Guilford S. | 1894 Ely, Albert H. |
| 1899 Duel, Arthur B. | 1904 Emerson, Haven |
| 1928 Duff, John | 1930 Emerson, Kendall |
| 1927 Duffy, James J. | 1902 Emerson, Linn |
| 1893 Dunham, Theodore | 1911 Epstein, Albert A. |
| 1915 Dunning, Henry Sage | 1908 Epstein, Sigmund |
| 1916 Dunning, William M. | 1910 Erdman, Seward |
| 1921 Dunnington, John H. | 1892 Erdmann, John F. |
| 1923 Dwight, Kirby | 1928 Evans, John N. |
| 1913 Dwyer, James G. | 1897 Ewing, James |
| 1927 Dwyer, William A. | 1905 Fahnestock, Ernest |
| 1898 Eagleton, Wells P. | 1931 Falk, Emil A. |
| 1927 Eastmond, Charles | 1916 Falk, Henry C. |
| 1926 Easton, Charles D. | 1924 Famulener, Lemuel W. |
| 1927 Easton, E. R. | 1932 Fanoni, Vincenzo |
| 1922 Edelman, Leo | 1928 Farnum, Waldo B. |
| 1922 Edelman, Moses H. | 1909 Farr, Charles E. |
| 1890 Edgar, J. Clifton | 1914 Farrar, Lilian K. P. |
| 1903 Edgerton, F. Cruger | 1910 Farrell, Benjamin P. |
| 1921 Edwards, James B. | 1910 Faulkner, E. Ross |
| 1921 Eggers, Carl | 1927 Faulkner, James F. |
| 1915 Eggleston, Cary | 1904 Feinberg, Israel L. |

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| 1928 Feit, Hermann | 1932 Fowler, Edmund Prince |
| 1923 Felberbaum, David | 1919 Fowler, Robert H. |
| 1930 Felden, Botho F. | 1906 Fowler, Russell S. |
| 1922 Feldman, Samuel | 1927 Fowlkes, John W. |
| 1922 Felsen, Joseph | 1916 Fox, Elsie |
| 1907 Ferguson, Robert H. | 1880 Fox, George H. |
| 1891 Ferris, Albert W. | 1904 Fox, Howard |
| 1924 Field, Cyrus W. | 1932 Francis, Thomas, Jr. |
| 1931 Findley, Robert T. | 1906 Frank, Robert T. |
| 1926 Fineman, Solomon | 1913 Frankel, Edward, Jr. |
| 1922 Finke, George W. | 1928 Frantz, Angus M. |
| 1920 Finkelstein, Harry | 1928 Frantz, Virginia K. |
| 1931 Finkle, Philip | 1920 Fraser, Alexander |
| 1913 Finley, Caroline S. | 1918 Fraser, John F. |
| 1929 Fischer, Alfred Elias | 1904 Frauenthal, Herman C. |
| 1908 Fischer, Hermann | 1923 Freed, Frederick C. |
| 1890 Fischer, Louis | 1927 Freeland, Frank |
| 1928 Fish, George W. | 1892 Freeman, Rowland G. |
| 1927 Fishberg, Arthur Maurice | 1931 Freston, Julian M. |
| 1931 Fishberg, Ella H. | 1924 Freudenfall, Benjamin |
| 1913 Fishberg, Maurice | 1927 Freund, Meyer H. |
| 1886 Fisher, Edward D. | 1926 Frey, Walter G., Jr. |
| 1918 Fisher, Judson C. | 1886 Fridenberg, Albert H. |
| 1930 Fisher, Robert C., 2nd | 1918 Friedman, Emanuel D. |
| 1924 Fiske, Edwin Rodney | 1932 Friedman, Jacob |
| 1895 Fiske, James Porter | 1908 Friedman, Louis |
| 1916 Fitzgerald, Fred J. C. | 1927 Fries, Margaret E. |
| 1920 Fletcher, Norton DeL. L. | 1913 Friesner, Isidore |
| 1905 Flexner, Simon | 1907 Frink, Claude A. |
| *1909 Floyd, Rolfe | 1904 Frissell, Lewis F. |
| 1922 Fobes, Joseph M. | 1919 Froehlich, Eugene |
| 1899 Foote, Edward M. | 1930 Frosch, Herman L. |
| 1914 Forbes, Henry Hall | 1896 Frothingham, Richard |
| 1904 Ford, William M. | 1912 Fuchsins, John H. |
| 1911 Foster, Nellis B. | |

- 1921 Fulkerson, Lynn Lyle
 1931 Fuller, Clarence C.
 1907 Furniss, Henry Dawson
 1931 Gais, Elmer S.
 1931 Galdston, Iago
 1932 Galland, Walter I.
 1900 Gant, Samuel G.
 1916 Garbat, Abraham L.
 1926 Garlock, John H.
 1889 Garmany, Jasper J.
 1921 Gatewood, William L.
 1914 Gaudiani, Vincent
 1931 Gavin, Helen
 1926 Gay, Frederick P.
 1916 Geiringer, David
 1914 Geist, Samuel H.
 1921 Gelber, Charles N.
 1928 Gerber, Rubin A.
 1910 Gerster, John C. A.
 1929 Geyelin, H. Rawle
 1901 Gibb, W. Travis
 1930 Giblin, John
 1893 Gibson, Charles L.
 1894 Gilfillan, W. Whitehead
 1906 Gillespie, David H. M.
 1921 Gillette, Curtenius
 1909 Gilmour, Andrew J.
 1925 Ginsberg, George
 1930 Ginsburg, Solomon
 1931 Ginsburg, Sol W.
 1887 Girdner, John H.
 1926 Gitlow, Samuel
 1918 Glafke, William H.
 1922 Glazebrook, Francis H.
 1923 Globus, Joseph H.
 1927 Glushak, Leopold I.
 1918 Goeller, Charles J.
 1928 Goetchius, Harry D.
 1922 Goetsch, Emil
 1927 Goff, Byron H.
 1930 Gold, Harry
 1900 Goldan, S. Ormond
 1919 Goldberger, Isidore H.
 1922 Goldberger, Lewis A.
 1929 Goldberger, Morris Aaron
 1927 Goldblatt, David
 1931 Goldbloom, A. Allen
 1923 Golden, Ross
 1891 Goldenberg, Hermann
 1928 Goldman, A. Milton
 1928 Goldman, Charles
 1928 Goldring, William
 1930 Goldstein, Eli
 1918 Goldstein, Isidore
 1908 Goldwater, Sigismund S.
 1930 Golub, Jacob Joshua
 1922 Gonzales, Thomas A.
 1922 Goodfellow, Lillian M.
 1930 Goodfriend, Milton J.
 1913 Goodfriend, Nathan
 1906 Goodhart, S. Philip
 1899 Goodman, Abraham L.
 1903 Goodman, Charles
 1931 Goodman, Henry I.
 1924 Goodman, Herman
 1906 Goodridge, Malcolm
 1927 Gordon, Richard E.
 1922 Gottesman, Julius
 1922 Gottlieb, Charles
 1922 Gottlieb, Mark J.

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| 1915 Gould, Everett W. | 1914 Guile, Hubert V. |
| 1923 Grace, Roderick V. | 1909 Guion, Clarence C. |
| 1905 Grad, Hermann | 1927 Guion, Connie M. |
| 1908 Graef, Charles | 1922 Gulliver, Francis D. |
| *1907 Graeser, Herman R.
A. | 1929 Gutierrez, Robert |
| 1925 Graham, John C. | 1898 Guttman, John |
| 1924 Graham, John R. | 1909 Gwathmey, James T. |
| 1910 Grant, John P. | 1901 Haas, Sidney V. |
| 1889 Grauer, Frank | 1909 Haberman, J. Victor |
| 1909 Grausman, Philip M. | 1927 Hahn, Leo J. |
| 1919 Graves, Gaylord W. | 1927 Haiman, Julius Arky |
| 1927 Gray, Irving | 1925 Hajek, Joseph |
| 1904 Greeff, J. G. William | 1904 Hale, Henry Ewing |
| 1905 Green, Nathan W. | 1926 Hall, Fairfax |
| 1925 Greenberg, David | 1918 Hall, John Mead |
| 1928 Greenberger, Monroe
E. | 1926 Hallett, De Wayne |
| 1913 Greene, James S. | 1891 Hallock, Silas F. |
| 1926 Greene, Marius | 1904 Halsey, Robert H. |
| 1891 Greene, Robert H. | 1921 Halsted, Harbeck |
| 1931 Greenhouse, Charles
A. | 1916 Hanford, John Munn |
| 1927 Greenwald, Max | 1928 Hanley, James S. |
| 1932 Gregg, Alan | 1914 Hansen, Ejnar |
| 1908 Gregory, Alice | 1928 Hardy, Le Grand H. |
| 1908 Gregory, Menas S. | 1921 Harkavy, Joseph |
| 1932 Gresser, Edward
Bellamy | 1904 Harlow, Ellwood |
| 1895 Griffin, Edwin H. | 1913 Harrar, James A. |
| 1931 Grinnell, Robert S. | *1909 Harrigan, Anthony H. |
| 1927 Gross, Louis | 1930 Harrington, Helen |
| 1915 Gross, Maurice H. | 1931 Harris, Augustus |
| 1909 Gross, Moritz | 1929 Harris, John Huggins |
| 1928 Gross, Paul | 1921 Harris, Louis I. |
| 1918 Grossman, Morris | 1894 Harris, Thomas J. |
| 1928 Grout, Gerald H. | 1904 Hart, T. Stuart |
| 1918 Grushlaw, Israel | 1911 Hartshorn, Winfred
M. |
| | 1917 Hartshorne, Isaac |
| | 1932 Hartung, Edward F. |
| | 1912 Hartwell, Henry A. |

1901 Hartwell, John A.	1922 Hetrick, Llewellyn E.
1931 Harvey, Harold D.	1914 Heyd, Charles Gordon
1897 Harvey, Thomas W.	1931 Heyl, James Harry
1918 Hasbrouck, James F.	*1899 Hibbs, Russell A.
1925 Haseltine, Sherwin L.	1932 Hicks, Hugh M.
1902 Haskin, William H.	1922 Higgins, William M.
1922 Hatcher, Robert A.	1910 Highman, Walter J.
1928 Hauser, Edwin T.	1903 Hill, Ira L.
1927 Hausman, Louis	1914 Hillman, Oliver S.
1923 Hauswirth, Louis	1909 Hinkle, Beatrice M.
1895 Hawkes, Forbes	1927 Hinsie, Leland E.
1922 Hawkins, William H.	1925 Hinton, J. William
1921 Hawks, Everett M.	1913 Hirsch, I. Seth
1932 Hayes, James Joseph	1921 Hirsh, A. Bern
1901 Hayes, William Van V.	1931 Hirst, Virginus B.
1907 Haynes, Royal S.	1904 Hitzrot, James M.
1909 Hays, Harold M.	1921 Hoch, George F.
1926 Healey, William V.	1928 Hoenig, Edward
1918 Healy, William P.	1911 Hognet, Joseph P.
1895 Heiman, Henry	1909 Holden, Frederick C.
1918 Heine, Joseph	1894 Holden, Ward A.
1890 Heitzmann, Louis	1920 Holladay, Edwin W.
1918 Held, Isidore W.	1907 Holland, Arthur L.
1910 Heller, Isaac M.	1925 Hollander, Edward
1932 Heller, Nathan B.	1930 Holt, Evelyn
1909 Hellman, Alfred M.	1930 Homrich, Leslie A.
1926 Henline, Roy Biggs	1921 Honan, William F.
1921 Hennessy, James P.	1887 Honegger, Oscar P.
1908 Hensel, Otto	1924 Hooker, Henry L.
1927 Herendeen, Ralph E.	1906 Hooker, Ransom S.
1928 Herman, Harold	1904 Hopkins, Frank T.
1910 Herrick, William W.	1926 Hopkins, J. Gardner
1922 Herriman, Frank R.	1928 Horn, Herman
1902 Herrman, Charles	1901 Horn, John
1919 Hertz, Julius J.	1922 Horn, Walter L.
1911 Herzig, Arthur J.	1913 Horowitz, Philip
1906 Hess, Alfred F.	1928 Hory, Joseph S.
	1923 Hough, Perry B.

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| 1913 Houghton, Harris A. | 1924 Hyman, Harold T. |
| 1930 Howard, Frederick H. | 1903 Hymanson, Abraham |
| 1925 Howard, Robert C. | 1927 Hyslop, George H. |
| 1923 Howe, Alexander C. | 1894 Ill, Edward J. |
| 1919 Howe, Hubert S. | *1900 Illoway, Henry |
| 1931 Howell, John Taylor,
Jr. | 1923 Imboden, Harry M. |
| 1926 Hoyt, Harold E. | 1910 Imperatori, Charles J. |
| 1896 Hubbard, William N. | 1918 Ingerman, Sergius M. |
| 1901 Hubby, Lester M. | 1908 Ippolito, Gennaro |
| 1885 Huber, Francis | 1924 Irish, William H. |
| 1911 Huber, Frederick W. | 1922 Irving, George R. |
| 1923 Hubert, Louis | 1913 Irving, Peter |
| 1919 Huddleson, James H. | 1909 Isaacs, Harry E. |
| 1919 Huey, Arthur J. | 1915 Ives, Robert F. |
| 1928 Hughes, Wendell L. | 1929 Ivimey, Muriel |
| 1910 Huhner, Max | 1908 Jaches, Leopold |
| 1928 Hume, Edward H. | 1928 Jacobi, Harry G. |
| 1927 Humphreys, Frederick
B. | 1932 Jacobi, Mendel |
| 1916 Humphries, Robert E. | 1926 Jacobsohn, Victor J. |
| 1924 Hunt, Charles Jack | 1927 Jacoby, Adolph |
| 1905 Hunt, Edward L. | 1885 Jacoby, George W. |
| 1903 Hunt, J. Ramsay | 1904 Jacoby, J. Ralph |
| 1917 Hunt, Westley M. | 1904 Jaeger, Charles H. |
| 1925 Huppert, Elmer I. | 1910 Jaffin, Abraham E. |
| 1901 Hurd, Lee M. | 1916 James, Henry |
| 1924 Hurd, Ralph A. | 1928 James, Wm. L. |
| 1920 Hutchinson, Abbott
T. | 1930 James, Martin Lewis |
| 1928 Hutchinson, Robert
H., Jr. | 1913 Jarcho, Julius |
| 1928 Hutton, Robert L. | 1900 Jarecky, Herman |
| 1912 Huvelle, Rene H. | 1905 Jarvis, Nathan S. |
| 1918 Hyams, Joseph A. | 1930 Jasper, M. Newton |
| 1928 Hyams, Mortimer N. | 1919 Jeck, Howard S. |
| 1882 Hyde, Frederick E. | 1900 Jelliffe, Smith Ely |
| 1910 Hyman, Abraham | 1914 Jellinghaus, C.
Frederic |
| | 1918 Jenison, Nancy |
| | 1921 Jennings, John E. |
| | 1932 Jerskey, Abraham |

1926 Jessup, David S. D.	1927 Kennedy, William T.
1922 Jessup, Everett C.	*1914 Kent, James M.
1922 Joachim, Henry	1927 Kenworthy, Marion E.
1927 Jobling, James W.	
1918 Johnson, F. Elmer	1904 Kenyon, James H.
1910 Johnson, Frederic M., Jr.	1924 Kenyon, Josephine H.
	1905 Keppler, Carl R.
1930 Johnson, Scott	1899 Kerley, Charles G.
1924 Johnson, Thomas H.	1919 Kerley, James H.
1918 Jones, David H.	1932 Kern, E. Clarence
1922 Jones, Marvin F.	1913 Kernan, John D., Jr.
1930 Jones, Oswald R.	1901 Kerrison, Philip D.
1921 Joseph, Morris	1922 Keschner, Moses
1927 Joughin, James L.	*1909 Kessel, Leo
1927 Joyner, James C.	1931 Kesten, Beatrice M.
1904 Judd, Aspinwall	1931 Kesten, Homer D.
1922 Judd, Harold B.	1915 Key, Ben Witt
1931 Jungeblut, Claus W.	1898 Keyes, Edward L.
1927 Kahn, Isador W.	1919 Keyes, Harold B.
1912 Kahn, L. Miller	1912 Kilbane, Edward F.
1909 Kaliski, David J.	1895 Kilham, Eleanor B.
1917 Kantor, John L.	1931 Kimball, Francis N.
1926 Kaplan, Ira I.	1920 Kindred, John J.
1927 Kardiner, Abraham	*1919 King, Edward A.
1930 Karelitz, Samuel	1915 King, James J.
1910 Kast, Ludwig	1920 King, Joseph E. J.
1922 Kaufman, Louis R.	1930 King, S. Edward
1906 Kaufmann, Jacob	1906 Kingsbury, Jerome
1928 Keating, John J. H.	1922 Kinloch, Robert E.
1932 Keil, Frank Conrad	1926 Kirby, Daniel Bartholomew
1909 Keller, Frederick C.	
1927 Keller, Henry	1918 Kirby, George H.
1922 Kelley, Catherine Rose	1922 Kirwin, Thomas J.
	1923 Klaus, Henry
1909 Kellogg, Edward L.	1932 Kleegman, Sophia J.
1929 Kellogg, William A.	1922 Klein, William
1912 Kennedy, Foster	1914 Kleinberg, Samuel
1926 Kennedy, Robert H.	1930 Kleinfeld, Louis

*Deceased

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| 1928 Klemperer, Paul | 1930 Kutisker, Meyer J. |
| 1930 Klenke, Dorothy A. | 1926 Ladd, William Sargent |
| 1923 Klepper, Julius I. | 1891 Ladin, Louis J. |
| 1926 Klingenstein, Percy | 1898 LaFetra, Linnaeus E. |
| 1927 Klotz, Walter C. | 1921 Laidlaw, George F. |
| 1897 Knapp, Arnold H. | 1904 Laighton, Florence M. |
| 1922 Knapp, Richard E. | 1931 Lally, Jordan |
| 1931 Knauth, Marjorie L. | 1912 Lamb, Albert R. |
| 1918 Knight, Frank H. | 1910 Lambert, Adrian V. S. |
| 1907 Knipe, William H.
W. | 1893 Lambert, Alexander |
| 1897 Knopf, S. Adolphus | 1907 Lambert, Frederick E. |
| 1921 Knopf, Saul | 1930 Lambert, Robert K. |
| 1926 Knox, Leila Charlton | 1891 Lambert, Samuel W. |
| 1927 Koenig, George A. | 1930 Landon, John F. |
| 1931 Koffler, Arnold | 1918 Landsman, Arthur A. |
| 1922 Koffler, Emil | 1932 Landsteiner, Karl |
| 1924 Kohn, Jerome L. | 1921 Lange, Louis C. |
| 1927 Kohn, Louis Winfield | 1922 Langmann, Alfred G. |
| 1898 Koller, Carl | 1918 Langrock, Edwin G. |
| 1906 Kopetzky, Samuel J. | 1910 Laporte, George L. |
| 1904 Kosmak, George W. | 1897 Lapowski, Boleslaw |
| 1911 Kovacs, Richard | 1931 La Rotonda, Oswald |
| 1927 Kraetzer, Arthur F. | 1922 Lasher, Willis W. |
| 1927 Kramer, Benjamin | 1922 Lattin, Berton |
| 1927 Kramer, Rudolph | 1930 Lavalle, Peter |
| 1920 Kraus, Walter M. | 1920 Lavandera, Miguel |
| 1930 Krech, Shepard | 1920 Larell, Thomas E. |
| 1923 Krida, Arthur | 1926 La Vigne, Alexander
A. |
| 1922 Kross, Isidor | 1917 Lavinder, Claude H. |
| 1917 Krug, Ernest F. | 1908 Law, Frederick M. |
| 1926 Kruskal, Isaac David | 1927 Laws, Carl Henry |
| 1932 Kubie, Lawrence S. | 1926 Lazarus, Joseph Ar-
thur |
| 1928 Kuhlmann, Alvin E. | 1932 Leader, Sidney D. |
| 1927 Kurzrock, Julius | 1921 Leahy, Sylvester R. |
| 1928 Kurzrok, Raphael | *1869 Leale, Charles A. |
| 1930 Kurzweil, Peritz M. | |
| 1927 Kutil, Henry Robert | |

1908 Leale, Medwin	1927 Likely, David Stanley
1921 Lederer, Max	1891 Lilienthal, Howard
1897 Lederman, Moses D.	1927 Lincoln, Asa Liggett
1904 Lee, Burton J.	1927 Lincoln, Edith M.
1928 Lee, George Bolling	1929 Lincoln, James R.
1930 Leff, Morris	1918 Lindeman, Howard E.
1928 Lehrman, Philip R.	1917 Linder, William
1931 Lenz, Maurice	1926 Lintz, Joseph
1914 Leo, Johanna B.	1930 Lippmann, Robert K.
1910 Leopold, Jerome S.	1927 Lipsett, Philip J.
1924 L'Episcopo, Joseph B.	1932 Lipsky, Merrill D.
1928 Lerner, Charles	1908 Littell, Elton G.
*1902 Leshure, John	1924 Littwin, Charles
1916 L'Esperance, Elise S.	1910 Lloyd, Henry W.
1926 Lester, Charles Willard	1927 Lloyd, Ralph I.
1932 Levene, Phoebus A.	1927 Loeb, Martin J.
1905 Levin, Isaac	1929 Loeb, Robert F.
1919 Levin, Oscar L.	1930 Loebel, Robert O.
1931 Levine, Joseph	1917 Loewenstein, Helene Correll
1929 Levine, Morris	1931 Logie, H. Burton
1927 Levine, Samuel Z.	1927 Lohman, William H.
1927 Levy, Ralph J.	1931 Loizeaux, Leon S.
1922 Levy, Robert L.	1920 Lombardo, Melchiorre
1911 Le Wald, Leon T.	1906 Long, Eli
1906 Lewi, Emily	1914 Long, William B.
1932 Lewi, Maurice J.	1919 Lopez, Jose Antonio
1932 Lewis, George M.	1926 Loré, John Marion
1932 Lewis, Jacques M.	*1926 Losey, Ray Robinson
1927 Lewis, Kenneth M.	1928 Lough, Walter G.
1922 Lewis, Raymond W.	1905 Loughran, Robert L.
1897 Lewis, Robert	1931 Lowrey, Lawson G.
1908 Lewisohn, Richard	1916 Lowsley, Oswald S.
1918 Lewy, Raphael	1932 Lubash, Samuel
1900 Libman, Emanuel	1922 Lucus, Thomas
1910 Lieb, Charles C.	D'Arcy
1920 Lieb, Clarence W.	1927 Ludlow, George C.
1924 Lightstone, Abraham	

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| 1924 Luippold, Eugene John | 1931 MacGregor, J. Arnot |
| 1927 Luke, H. Clifton | 1929 McGuinness, Madge C. L. |
| 1898 Lusk, William C. | 1919 MacGuire, Constantine J., Jr. |
| 1927 Lutz, J. Raymond | 1922 MacGuire, Daniel P. |
| 1905 Lyle, Henry H. M. | 1897 MacHale, Ferdinand S. |
| 1908 Lyle, William G. | 1920 McHenry, Junius H. |
| 1929 Lynch, Jerome M. | 1925 McIntosh, Rustin |
| 1898 Lynch, John B. | 1908 MacKee, George M. |
| 1926 Lyon, Edward C., Jr. | 1921 McKendree, Charles A. |
| 1930 Lyons, Hubert A. | 1920 McKenna, William F. |
| 1930 Lyons, Morris A. | 1932 Mackenzie, Locke |
| 1922 Lyttle, John D. | 1927 MacKenzie, Luther B. |
| 1895 McAlpin, David H. | 1932 McKeown, Hugh S. |
| 1916 McAlpin, Kenneth R. | 1894 McKernon, James F. |
| 1901 McAuliffe, George B. | 1927 McKinney, John McDowell |
| 1928 McAuliffe, Gervais W. | 1931 McLave, Evan W. |
| 1903 McBarron, John D. | 1928 MacLean, Aubrey B. |
| 1918 McCabe, John | *1913 McLean, Stafford |
| 1909 McCarthy, Joseph F. | 1930 McLean, William |
| 1912 McCastline, William H. | 1911 MacLeod, William P. |
| 1899 McCoy, John Charles | 1932 McMaster, Philip D. |
| 1904 McCoy, John J. | 1920 MacNeal, Ward J. |
| 1905 McCreery, Forbes R. | 1917 McNeill, Walter H., Jr. |
| 1914 McCreery, John A. | 1905 MacPhee, John J. |
| 1929 McDaniel, Floyd C. | 1908 Macpherson, Duncan |
| 1921 McDannald, Clyde E. | 1909 McPherson, Ross |
| 1902 McDonald, Dennis J. | 1928 McQuillan, Arthur S. |
| 1930 McDonald, Richard Joseph | 1924 MacRobert, Russell G. |
| 1927 MacFee, William F. | 1920 McSweeney, Edward S. |
| 1927 McGowan, Frank J., Jr. | 1894 Mabbott, J. Milton |
| 1922 McGrath, John F. | |
| 1903 McGrath, John J. | |
| 1928 McGraw, Robert B. | |

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| 1930 Mackie, Thomas Tur-
lay | 1924 Matthews, Frederick
J. |
| 1928 Mage, Sigmund | 1928 Matthews, Harvey B. |
| 1923 Magid, Maurice O. | 1886 May, Charles H. |
| 1927 Magida, Nathan | 1907 May, William Ropes |
| 1913 Malcolm, Percy E. D. | 1918 Maybaum, Jacob L. |
| 1930 Malloch, Archibald | 1918 Mayer, Leo |
| 1920 Maloney, Edward R. | 1932 Maynard, Edwin
Post, Jr. |
| 1914 Mandel, Arthur R. | 1929 Meek, Raymond E. |
| 1928 Mandelbaum, M.
Joseph | 1916 Meeker, Harold D. |
| 1892 Manges, Morris | 1932 Meeker, Louise H. |
| 1925 Mannheim, Sigmund | 1922 Meichner, Frederick
H., Jr. |
| 1917 Manley, Herbert D. | 1900 Meierhof, Edward
L. |
| 1923 Mann, Hubert | 1927 Meleney, Frank L. |
| 1897 Mann, John | 1932 Mencher, William H. |
| 1927 Mann, Lewis T. | 1918 Mencken, Harry P. |
| 1904 Mannheimer, George | 1931 Merrill, E. Forrest |
| 1913 Manning, G. Ran-
dolph | 1924 Merritt, Katherine K. |
| 1928 Marcovici, Eugene E. | 1902 Mersereau, William
J. |
| 1921 Marine, David | 1930 Merwarth, Harold
Russell |
| 1932 Marmorston-Gottes-
man, Jessie | 1926 Messing, Arnold |
| 1913 Marsh, Elias J. | 1929 Mettenleiter, Michael
W. |
| 1928 Martin, Alexander T. | 1885 Meyer, Alfred |
| 1928 Martin, Kirby A. | 1925 Meyer, Herbert W. |
| 1911 Martin, Thomas A. | 1930 Meyer, Monroe A. |
| 1906 Martin, Walton | 1931 Meyer, William Henry |
| 1930 Martland, Harrison
S. | *1887 Meyer, Willy |
| 1927 Marton, Louis | 1921 Meynen, George K. |
| 1909 Mason, Howard H. | 1907 Michaelis, Alfred |
| 1927 Master, Arthur M. | 1904 Michailovsky, M. |
| 1931 Masterson, John J. | 1912 Michel, Leo L. |
| 1904 Mathews, Francis S. | 1918 Milbank, Samuel |
| 1927 Matsner, Eric M. | |
| 1909 Matthews, Frank C. | |

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| 1927 Milch, Henry | 1916 Morrow, Albert S. |
| *1906 Miller, Frank E. | 1930 Morse, Joseph L. |
| 1904 Miller, George N. | 1931 Morse, Russell Wright |
| 1920 Miller, Heymen R. | 1891 Mortimer, W. Golden |
| 1904 Miller, James Alex-
ander | 1930 Morton, Dudley J. |
| 1927 Miller, John | 1897 Morton, Henry H. |
| 1931 Miller, Laura | 1929 Morton, Paul Colhoun |
| 1931 Millet, John A. P. | 1900 Moschcowitz, Alexis
V. |
| 1906 Milliken, Seth M. | 1906 Moschcowitz, Eli |
| 1901 Mills, Jackson M. | 1907 Mosenthal, Herman
O. |
| 1924 Mills, Nathaniel | 1924 Moss, Abraham |
| 1919 Miner, Donald | 1908 Moss, L. Howard |
| 1932 Minsky, Henry | 1913 Mount, Walter B. |
| 1917 Mitchell, Charles R. | 1932 Muehleck, George E. |
| 1925 Mitchell, Wendell | 1909 Mulholland, Joseph
A. |
| 1910 Mittendorf, Alfred D. | 1918 Munn, Aristine P. |
| 1916 Mixsell, Harold R. | *1892 Munroe, George E. |
| 1926 Moench, Gerard L. | 1927 Murphy, James B. |
| 1922 Moffat, Barclay W. | 1922 Murray, Clay Ray |
| 1913 Moffett, Rudolph D. | 1929 Murray, Foster |
| 1918 Moitrier, William, Jr. | 1924 Myers, Florizel deL. |
| 1932 Monash, Samuel | 1905 Myers, Howard G. |
| 1899 Monaelesser, Adolph | 1925 Myers, Lotta Wright |
| 1928 Montgomery, An-
drew H. | 1926 Myerson, Mervin C. |
| 1927 Moolten, Ralph R. | 1889 Myles, Robert C. |
| 1904 Mooney, Henry W. | 1928 Nardiello, Vincent A. |
| 1909 Moore, Albertus A. | 1929 Nash, Edward M. |
| 1904 Moorhead, John J. | 1903 Nathan, Philip W. |
| 1931 Moretsky, Henry M. | 1921 Neal, Josephine B. |
| 1927 Morhard, Francis L. | 1923 Neer, Edmonde De
Witt |
| 1922 Morrill, Ashley B. | 1902 Neer, William |
| 1923 Morris, John H. | 1902 Neergaard, Arthur E. |
| 1890 Morris, Lewis R. | 1928 Neff, Lewis K. |
| 1891 Morris, Robert T. | 1927 Neilson, John, Jr. |
| 1927 Morrison, William W. | |
| 1925 Morrissey, John H. | |

1931 Neivert, Harry	1928 Orton, Henry B.
1916 Nelson, Aaron	1932 Orton, Samuel Torrey
1928 Nelson, Ray S.	1904 Osgood, Alfred T.
1932 Nemet, Geza	1908 Osgood, Charles
1909 Neuhoof, Harold	*1918 Osnato, Michael
1918 Neustaedter, Marcus	1911 Ottenberg, Reuben
1930 Newman, David A.	1927 Otto, Harold L.
*1908 Newman, Emanuel D.	1908 Oulmann, Ludwig
1922 Ney, K. Winfield	1928 Owre, Alfred
1931 Nicholls, Edith E.	1909 Packard, Maurice
1908 Niles, Walter L.	1906 Page, John R.
1918 Nilsen, Arthur	1931 Paige, Beryl Holmes
1917 Nilson, S. John	1921 Palefski, Israel O.
1905 Norrie, Van Horne	1921 Palmer, Arthur
1906 Norris, Charles	1922 Palmer, Walter W.
1928 Northcott, Thomas A.	1915 Pappenheimer, Alwin M.
1932 Northington, Page	1923 Pardee, Harold E. B.
1886 Northrup, William P.	1923 Pardee, Irving H.
1906 Norton, Nathaniel R.	1892 Park, William H.
1897 Noyes, William B.	1906 Parker, Ransom J.
1908 Nutt, John J.	1906 Parodi, Teofilo
1928 Oast, Samuel P.	1908 Parounagian, Mihran B.
1912 Oastler, Frank R.	1931 Parsons, C. J. F.
1918 Oberndorf, Clarence P.	1922 Parsons, William Barclay, Jr.
1931 Oberrender, Girard F.	1911 Pascal, Henry S.
1910 Ochs, Benjamin F.	1904 Patterson, Henry S.
1930 O'Connor, H. A. D.	1932 Patterson, Howard A.
1885 Offenbach, Robert	1927 Patterson, Russel H.
1904 Ogilvy, Charles	1930 Pattison, Jean Harwood
1932 Olitsky, Peter K.	1926 Pearlstein, Frank
1906 Oppenheimer, Bernard S.	1910 Pease, Herbert D.
1912 Oppenheimer, Edgar D.	1913 Pease, Marshall C., Jr.
1910 Orgel, David H.	1931 Peck, Samuel M.
1927 Orgel, Samuel Z.	
1927 Ornstein, George G.	

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| 1886 Peckham-Murray,
Grace | 1913 Pou, Robert E. |
| 1898 Pedersen, James | 1931 Pound, Robert E. |
| 1904 Pedersen, Victor C. | 1931 Pratt, George K. |
| 1895 Peet, Edward W. | 1927 Previtali, Giuseppe |
| 1923 Peightal, Thomas C. | 1931 Prewitt, Proviso V. |
| 1926 Pennoyer, Grant P. | 1927 Prime, Frederick |
| 1928 Perilli, Charles A. | 1907 Proctor, James W. |
| 1928 Perkins, Orman C. | 1905 Prout, Thomas P. |
| 1929 Perkins, Osborn P. | 1894 Pulley, William J. |
| 1930 Perla, David | 1915 Pumyea, P. Clinton |
| 1929 Perlberg, Harry J. | 1902 Putnam, Charles R. L. |
| 1917 Perrone, Ettore | 1926 Putnam, Mary |
| 1931 Peters, Frank H. | 1922 Pyle, Edwin |
| 1905 Peterson, Edward W. | 1932 Pyle, Louis Apgar |
| 1888 Peterson, Frederick | 1920 Pyle, Wallace |
| 1921 Philips, Carlin | 1921 Quick, Douglas A. |
| 1922 Philips, Herman B. | 1911 Quimby, A. Judson |
| 1886 Phillips, Wendell C. | 1909 Quinn, Stephen T. |
| 1922 Phillips, W. Gray | 1891 Quintard, Edward |
| 1922 Pickhardt, Otto C. | 1921 Rabinowitz, Meyer A. |
| 1928 Pierce, Lee R. | 1907 Rae, John B. |
| 1923 Pierson, Richard N. | 1922 Rafsky, Henry A. |
| 1904 Pinkham, Edward W. | 1927 Rahte, Walter E. |
| 1926 Platt, Anna | 1929 Raisbeck, Milton J. |
| 1928 Plaut, Alfred | 1931 Ralli, Elaine P. |
| 1911 Plummer, Harry E. | 1918 Ramirez, Maximilian
A. |
| 1920 Poll, Daniel | 1916 Ramsdell, Edwin G. |
| 1924 Pollak, Alfred W. | 1924 Randall, John A. |
| 1891 Pollitzer, Sigmund | 1925 Randel, William A. |
| 1928 Pomeranz, Maurice
M. | 1909 Randolph, John M. |
| 1919 Pond, Erasmus A. | 1926 Ransohoff, Nicholas S. |
| 1904 Pool, Eugene H. | 1932 Rappleye, Willard C. |
| 1931 Pope, Edgar M. | 1927 Rashbaum, Maurice |
| 1891 Porter, William H. | 1920 Rathbun, Nathaniel
P. |
| 1931 Potter, Howard W. | 1925 Ratner, Bret |
| 1924 Potter, Philip C. | 1918 Ratnoff, Hyman L. |

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| 1931 Ratnoff, Nathan O. | 1931 Rivers, Thomas M. |
| 1914 Rawls, Reginald McC. | 1924 Robbin, Lewis |
| 1926 Read, J. Sturdivant | 1907 Robbins, Felicia A. |
| 1901 Rector, Joseph M. | 1919 Roberts, Dudley De V. |
| 1928 Reed, Elias A. | 1928 Roberts, Kingsley |
| 1928 Reese, Algernon B. | 1910 Roberts, Percy W. |
| 1914 Rehling, Martin | 1923 Robertson, Victor A. |
| 1931 Reich, Arthur M. | 1923 Robins, Bernard L. |
| 1930 Reich, Carl | 1927 Robinson, G. Allen |
| 1921 Reid, John J., Jr. | 1929 Robinson, G. Canby |
| 1924 Reiss, Joseph | 1912 Robinson, John A. |
| 1914 Remer, John | 1928 Robinson, Lewis B. |
| 1927 Restin, Erich H. | 1910 Robinson, Meyer R. |
| 1912 Reuben, Mark S. | 1910 Robinson, William J. |
| 1925 Reynolds, Frederick
P. | 1927 Rodgers, Mortimer
William |
| 1930 Reynolds, Margaret
R. | 1920 Roemer, Jacob |
| 1927 Reznikoff, Paul | 1927 Rogatz, Julian L. |
| 1932 Rhoads, Cornelius P. | 1905 Rogers, John |
| 1926 Rhodebeck, Edmund
J. | 1919 Rohde, Max S. |
| 1887 Rice, Clarence C. | 1927 Rohdenburg, G. L. |
| 1921 Rice, Frederick W. | 1915 Rongy, Abraham J. |
| 1904 Richards, John D. | 1908 Roper, Joseph C. |
| 1910 Richards, John H. | 1928 Rose, Ben-Henry |
| 1928 Richter, Maurice N. | 1916 Rosen, Isadore |
| 1908 Riesenfeld, Edwin A. | 1928 Rosen, Samuel |
| 1909 Rieser, Willy | 1911 Rosenbluth, Benjamin |
| 1932 Riley, Edward J. | 1922 Rosenblüth, Milton B. |
| 1919 Riley, Henry Alsop | 1927 Rosenfeld, Samuel S. |
| 1919 Rimer, Edward S. | 1923 Rosenheck, Charles |
| 1917 Ringer, Adolph I. | 1922 Rosensohn, Meyer |
| 1932 Ringer, Michael | 1928 Rosenson, William |
| 1932 Riordan, Timothy J. | 1906 Rosenthal, Max |
| 1922 Ritter, Henry H. | 1922 Rosett, Joshua |
| 1925 Ritter, J. Sidney | 1928 Ross, John |
| 1926 Ritter, Saul A. | 1918 Rost, William L. |
| | 1919 Rosenstein, Adolph |
| | 1906 Roth, Henry |

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| 1932 Roth, Irving R. | 1932 Sawyer, Wilbur A. |
| 1922 Rothschild, Marcus A. | 1927 Saxl, Newton T. |
| 1930 Rous, Peyton | 1918 Scadron, Samuel J. |
| 1912 Rowland, Harry H. | 1918 Scal, J. Coleman |
| 1923 Rubin, Isidor C. | 1911 Schapira, Samuel W. |
| 1921 Rulison, Ray H. | 1927 Scheer, Henry M. |
| 1931 Russell, Frederick F. | 1917 Scheer, Max |
| 1908 Russell, James I. | 1927 Schick, Bela |
| 1922 Russell, Thomas
Hendrick | 1931 Schilder, Paul F. |
| 1909 Ryder, George H. | 1923 Schiller, Abraham N. |
| 1930 Sabin, Florence R. | 1903 Schley, Winfield S. |
| 1887 Sachs, Bernard | 1908 Schlichter, Charles H. |
| 1930 Sackett, Nelson B. | 1918 Schlivek, Kaufman |
| 1926 Safford, Henry B. | 1911 Schloss, Oscar M. |
| 1927 Sagal, Zachary | 1932 Schmidt, Otto V. M. |
| 1915 St. John, Fordyce B. | 1908 Schnepel, George A. |
| 1920 St. Lawrence, William
P. | 1912 Schoenberg, Mark J. |
| 1918 Salisbury, Lucius A. | 1930 Schreiber, Martin |
| 1925 Salzer, Benjamin | 1918 Schroeder, Louis C. |
| 1918 Sammis, Jesse F. | 1930 Schroeder, William,
Jr. |
| 1913 Samuels, Bernard | 1928 Schullinger, Rudolph
N. |
| 1927 Samuels, Saul S. | 1920 Schulman, Maximilian |
| 1923 Sanders, Theodore M. | 1912 Schultze, Ernest C. |
| 1921 Sands, Irving J. | 1927 Schwartz, C.
Wadsworth |
| 1918 Satenstein, David L. | 1915 Schwartz, Hans J. |
| 1927 Satterlee, Henry S. | 1928 Schwartz, Irving |
| 1882 Satterthwaite,
Thomas E. | 1929 Schwartz, Joseph |
| 1923 Sauer, Paul Kurt | 1928 Schwartz, Sidney P. |
| 1930 Saunders, Edward W. | 1906 Schwarz, Herman |
| 1927 Saunders, Harry
Clayton | 1917 Schwerdtfeger, Otto
M. |
| 1919 Saunders, Truman L. | 1914 Scofield, Raymond B. |
| 1920 Sautter, Carl Marion | 1922 Scott, Augusta |
| 1915 Savini, Carlo | 1907 Scott, George Dow |
| 1926 Sawhill, John E. | 1925 Scott, James R. |

*1915 Scott, Richard J. E.	1880 Silver, Henry Mann
1928 Seaman, Benjamin W.	1893 Silver, Lewis Mann
*1885 Seaman, Louis L.	1928 Simons, Irving
1914 Seff, Isadore	1921 Siris, Irwin E.
1932 Selig, Seth	1912 Sittenfield, Maurice J.
1922 Selinger, Jerome	1921 Skinner, Clarence E.
1931 Selinsky, Herman	1922 Slattery, George N.
1904 Semken, George H.	1932 Sloan, Lawrence Wells
1931 Senger, Fedor L.	1932 Slocum, C. Jonathan
1911 Senior, Harold D.	1932 Smetana, Hans
1931 Severance, Robert	1923 Smith, Alan De-
1932 Seward, Jackson A.	Forest
1924 Seymour, Nan Gilbert	1928 Smith, Beverly C.
1921 Shailer, Sumner	1917 Smith, Charles A.
1926 Shann, Herman	1914 Smith, Charles Hen-
1908 Shannon, John R.	dee
1921 Shapiro, Louis G.	1916 Smith, Clarence H.
1926 Shapiro, Louis L.	1930 Smith, Frank R.
1929 Shapiro, Matthew	1901 Smith, Harmon
1926 Sharlit, Herman	1918 Smith, J. Morrissett
1902 Sharp, J. Clarence	1924 Smith, James W.
1914 Sharpe, William	1930 Smith, Lawrence Weld
1920 Shattuck, Howard F.	1919 Smith, Martin DeF.
1905 Shearer, Leander H.	1927 Smith, Morley T.
1918 Sheehan, J. Eastman	1916 Smith, Morris K.
1907 Sheffield, Herman B.	1923 Sneed, William L.
1905 Shelby, Edmund P.	1918 Snow, William F.
1931 Sheldon, Paul B.	1923 Snyder, Orlow C.
1929 Shelley, Harold John	1913 Snyder, R. Garfield
1932 Sheplar, Adele E.	1904 Solley, Fred P.
1909 Sherman, Elbert S.	1927 Solley, Frederick W.
1920 Sherwin, Carl Paxson	1905 Solley, John B., Jr.
1910 Shine, Francis W.	1928 Solomon, Harry A.
1918 Shlenker, Milton A.	1893 Sondern, Frederic E.
1931 Shore, Benjamin R.	1925 Sonnenschein, Harry
1928 Schwartzman, Gregory	D.
1928 Silbert, Samuel	1910 Soresi, Angelo L.
1932 Silver, Henry	1902 Sour, Bernard

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| 1894 Southworth, Thomas S. | 1919 Stetson, Rufus E. |
| 1922 Sovak, Francis W. | 1907 Stetten, De Witt |
| 1927 Spain, Will Cook | 1930 Stevens, Albert M. |
| 1921 Spaulding, Edith Rogers | 1909 Stevens, Alex. Raymond |
| 1917 Spaulding, Harry Van N. | 1919 Stevens, Charles W. |
| 1928 Speiser, Mortimer D. | 1916 Stevenson, George |
| 1918 Spencer, Henry J. | 1922 Stevenson, Holland N. |
| 1910 Spickers, William | 1927 Stevenson, Lewis |
| 1920 Spiegel, Leo | 1895 Stewart, George David |
| 1923 Spielberg, William | 1930 Stewart, Harold J. |
| 1922 Spies, Edward A. | 1918 Stewart, John D. |
| 1927 Spillman, Ramsay | 1912 Stewart, William H. |
| 1901 Squier, J. Bentley | 1911 Stillman, Alfred, 2d. |
| 1931 Stainsby, Wendell J. | 1923 Stillman, Edgar |
| 1932 Stanley-Brown, Margaret | 1918 Stillman, Ernest G. |
| 1922 Stark, Jesse B. | 1911 Stillman, Ralph G. |
| *1885 Starr, M. Allen | 1931 Stimson, Barbara B. |
| 1889 Stearns, Henry S. | 1921 Stimson, Philip M. |
| 1880 Stedman, Thomas L. | 1922 Stivelman, Barnet P. |
| 1904 Steese, Edwin S. | 1913 Stockard, Charles R. |
| 1922 Steffen, Walter C. A. | 1927 Stone, William Ridgely |
| 1908 Stein, Arthur | 1898 Stone, William S. |
| 1932 Stein, Herbert Edward | 1930 Stoner, William H. |
| 1909 Stein, Sydney A. | 1920 Stookey, Byron P. |
| 1918 Steinach, William | 1924 Stout, Arthur Purdy |
| 1928 Steinbugler, Wm. F. C. | 1919 Stowell, David D. |
| 1925 Steiner, Joseph M. | 1918 Strachstein, Abraham |
| 1928 Stenson, Walter T. | 1904 Strang, Walter W. |
| 1924 Stephens, Richmond | 1908 Strauss, Israel |
| 1925 Stepita, C. Travers | 1930 Strauss, Spencer Goldsmith |
| 1905 Stern, Abram Richard | 1928 Strodl, George T. |
| 1917 Stern, Adolph | 1917 Strong, Samuel M. |
| 1908 Stern, Arthur | 1887 Stubenbord, William |
| 1928 Stetson, Dudley D. | 1930 Studdiford, William E., Jr. |

1908 Sturges, Leigh F.	1927 Thomen, August A.
1901 Sturmdorf, Arnold	1929 Thompson, Charles Baker
1927 Sturtevant, James M.	1904 Thompson, Hugh C.
1919 Sturtevant, Mills	1929 Thompson, Samuel Alcott
1912 Sullivan, Raymond P.	1907 Thomson, John J.
1931 Sulzberger, Marion B.	1927 Thorburn, Grant
1909 Sutherland, Fred B.	1908 Thorne, Victor C.
1927 Sutton, John E., Jr.	1922 Thornley, Josiah P.
1927 Sutton, Lucy Porter	1916 Throne, Binford
1927 Sweet, Joshua E.	1931 Tickle, Thomas G.
1889 Swift, Edwin E.	1910 Tieck, Gustav J. E.
1927 Swift, Harry P.	1915 Tilney, Frederick
1916 Swift, Homer F.	1901 Tilton, Benjamin T.
1928 Swift, Walker E.	1906 Timme, Walter
1926 Symmers, Douglas	1906 Titus, Edward C.
1888 Syms, Parker	1913 Titus, Henry W.
1901 Synnott, Martin J.	1921 Titus, Norman E.
1904 Taylor, Alfred S.	1922 Tobin, Thomas J.
1922 Taylor, Charles G.	1909 Tompkins, Walstein M.
1921 Taylor, Fenton	1929 Toole, John
1901 Taylor, Fielding L.	1891 Torek, Franz J. A.
1927 Taylor, Henry Keller	1926 Touart, Maximin De M.
1898 Taylor, Howard C.	1931 Touroff, Arthur S. W.
1930 Taylor, Howard C., Jr.	1895 Tousey, Sinclair
1920 Taylor, Kenneth	1908 Tovey, David W.
1932 Tenenbaum, Joseph	1928 Tow, Abraham
1925 Tenney, Charles F.	1902 Townsend, Terry M.
*1897 Terriberry, Joseph F.	*1902 Tracy, Ira Otis
1927 Terry, Arthur H., Jr.	1925 Traub, Eugene F.
1918 Terry, Ira B., Jr.	1907 Travell, J. Willard
1932 Tetelman, Michael M.	1932 Treves, Norman
1911 Thacher, Henry C.	1917 Truesdell, Edward D.
1910 Theobald, Carl	1927 Tulipan, Louis
1890 Thomas, Allen M.	*1913 Turck, Fenton B.
1924 Thomas, Joseph S.	
1904 Thomas, William S.	
1926 Thomasson, Aaron Hood	

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| 1929 Turner, Joseph | 1903 Voislowsky, Antonie P. |
| 1906 Turnure, Percy R. | |
| 1932 Twinem, Francis Patton | 1924 von Deesten, Henry T. |
| 1919 Tyson, Cornelius J. | 1927 von Glahn, William C. |
| 1890 Tyson, Henry H. | 1929 Von Hofe, Frederick H. |
| 1917 Unger, Arthur S. | 1925 Von Sholly, Anna Irene |
| 1924 Unger, James Samuel | |
| 1927 Unger, Lester J. | 1921 Voorhees, Irving W. |
| 1920 Urquhart, Howard D. | 1928 Vorhaus, Martin G. |
| 1912 Valentine, Julius J. | 1931 Wachsmann, Siegfried |
| 1910 van Beuren, Frederick T., Jr. | 1931 Wade, Preston A. |
| 1906 Van Cott, Joshua M. | 1920 Wadhams, Robert P. |
| 1927 Vander Veer, Albert, Jr. | 1927 Wagner, Lewis C. |
| 1924 Van Derwerker, Earl E. | 1927 Waldie, Thomas E. |
| 1931 Van Dyck, Laird S. | 1928 Waldman, David P. |
| 1922 Van Etten, Nathan B. | 1893 Walker, John B. |
| 1920 Van Etten, Royal C. | 1903 Wallace, Charlton |
| 1927 Van Fleet, J. Flan- | 1904 Wallace, George B. |
| dreau | 1904 Wallace, Henry |
| 1906 Van Ingen, Philip | 1931 Wallace, Robert Pulley |
| 1932 Van Orden, Thomas D. | *1908 Waller, Newton B. |
| 1906 Van Wagenen, Corne- | 1907 Wallhauser, Henry J. F. |
| lius D. | |
| 1908 Vaughan, Harold S. | 1904 Walsh, James J. |
| 1932 Vero, Frank | 1920 Walsh, Robert E. |
| 1926 Verplanck, Van Noyes | 1891 Walter, Josephine |
| 1916 Vietor, John A. | 1920 Walzer, Abraham |
| 1930 Vinciguerra, Michael | 1901 Ward, Freeman F. |
| 1890 Vineberg, Hiram N. | 1895 Ward, George Gray |
| 1922 Vinton, Cadwallader C. | 1910 Ward, George H. |
| | 1908 Ward, Wilbur |
| 1914 Virden, John E. | 1901 Ware, Martin W. |
| 1913 Vogel, Karl M. | 1932 Warren, Arthur Fulton |
| 1908 Vogeler, William J. | 1914 Warren, Luther F. |
| | 1897 Warsaw, M. Claudius. |

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| 1925 Washburn, Arthur L. | 1906 Whiting, Frederick |
| 1921 Washton, Jacob | 1920 Whitman, Armitage |
| 1928 Watson, Benjamin P. | 1891 Whitman, Royal |
| 1920 Watson, Cassius H. | 1927 Whittemore, W. |
| 1932 Watson, William L. . | Laurence |
| 1921 Webster, David H. | 1904 Wiener, Alfred |
| 1932 Webster, Jerome P. | 1914 Wiener, Herbert J. |
| 1919 Wechsler, Israel S. | 1900 Wiener, Joseph |
| 1928 Weeden, Willis M. | 1883 Wiener, Richard G. |
| 1928 Weeks, Carnes | 1908 Wiener, Solomon |
| 1886 Weeks, John E. | 1918 Wiggers, August F. A. |
| 1920 Weeks, Webb W. | 1905 Wightman, Orrin S. |
| 1922 Weil, Henry L. | 1907 Wilcox, Herbert B. |
| 1912 Weinstein, Harris | 1927 Wile, Ira S. |
| 1927 Weintraub, Sydney | 1927 Wilens, Ira |
| 1932 Weiss, Harry | 1914 Wilensky, Abraham |
| 1930 Weissberg, Morris | O. |
| 1906 Welch, John E. | 1927 Wilhelm, Seymour F. |
| 1909 Welker, Franklin | 1922 Willard, Luvia Mar- |
| 1894 Welt-Kakels, Sara | garet |
| 1914 Wessler, Harry | 1893 Willard, Thomas H. |
| 1916 West, Davenport | 1901 Williams, Anna W. |
| 1929 West, Randolph | 1903 Williams, Charles M. |
| 1927 Westermann, John J., | 1918 Williams, Frankwood |
| Jr. | F. |
| 1931 Wexler, David | 1916 Williams, Horatio B. |
| 1911 Wheeler, John M. | 1928 Williams, Jesse F. |
| 1928 Wheeler, Wm. L. | 1904 Williams, Linsly R. |
| 1926 Wheelwright, Joseph | 1886 Williams, Mark H. |
| S. | 1923 Williams, Percy H. |
| 1915 Whipple, Allen O. | 1905 Williams, William R. |
| 1927 Whisenant, John R. | 1928 Williamson, Carolyn |
| 1915 Whitbeck, Brainerd | Gay |
| H. | 1918 Williamson, Hervey |
| 1911 White, Francis W. | C. |
| 1920 White, James W. | 1927 Willis, Benedict P. |
| 1882 White, John Blake | 1931 Wilmoth, Clifford Lee |
| 1920 White, William C. | 1905 Wilner, Anna S. |

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| 1918 Wilson, Arthur S. | 1891 Woolsey, George |
| 1900 Wilson, Frederic N. | 1896 Wootton, Herbert W. |
| 1932 Wilson, Margaret
Barclay | 1917 Worcester, James N. |
| 1917 Wilson, May G. | 1932 Wortis, S. Bernard |
| 1914 Wing, Lucius A. | 1917 Wright, Arthur M. |
| 1927 Winkelstein, Asher | 1932 Wright, Irving Sher-
wood |
| 1909 Wise, Fred | 1926 Wurtzel, George L. |
| 1928 Wishner, Joseph G. | 1932 Wurzbach, Frederick
A., Jr. |
| 1924 Witt, Dan Hiter | 1918 Wyckoff, John H. |
| 1927 Woglom, William H. | 1910 Wyeth, George A. |
| 1922 Wolf, Charles | 1889 Wylie, Robert H. |
| 1922 Wolf, George D. | 1932 Yaguda, Asher |
| 1912 Wolf, Heinrich Franz | *1904 Yankauer, Sidney |
| 1899 Wolff, Julius | 1908 Yeomans, Frank C. |
| 1931 Wollner, Anthony | 1910 Young, Anna R. |
| 1901 Wollstein, Martha | 1910 Young, Charles H. |
| 1911 Wood, Francis C. | 1928 Yudkowsky, Peter |
| 1931 Wood, Paul M. | 1908 Zabriskie, Edwin G. |
| 1924 Wood, Thomas D. | 1921 Zadek, Isadore |
| 1910 Woodruff, I. Ogden | 1930 Zeiss, Robert F. |
| 1917 Woodruff, Stanley R. | 1927 Ziegler, J rome M. |
| 1927 Woodruff, W. Stuart | 1932 Zilboorg, Gregory |
| 1928 Woody, McIver | 1909 Zipser, Jacques E. |
| 1904 Woolley, Scudder J. | 1932 Zucker, Morris |

NON-RESIDENT FELLOWS

- 1923 Ackerman, James F., Asbury Park, N. J.
 1906 Adler, Herman M., Berkeley, Calif.
 1903 Adriance, Vanderpoel, Williamstown, Mass.
 1931 Ager, Louis C., Rutland Heights, Mass.
 1898 Alling, Arthur N., New Haven, Conn.
 1888 Armstrong, Samuel T., Katonah, N. Y.
 1882 Bacon, Gorham, Yarmouthport, Mass.
 1916 Baldwin, Edward R., Saranac Lake, N. Y.
 1906 Barnum, Merritt W., Ossining, N. Y.

*Deceased

- 1924 Barr, David P., St. Louis, Mo.
*1915 Bartholomew, Henry S., Napanoch, Ulster Co., N.Y.
1914 Baughman, William H., Oakland, Calif.
1931 Bedell, Arthur J., Albany, N. Y.
1921 Benson, Arthur W., Troy, N. Y.
1920 Bibby, Henry L., Kingston, N. Y.
1900 Bickham, Warren S., Richmond, Va.
1908 Black, John Fielding, White Plains, N. Y.
1920 Blaisdell, Russell E., Orangeburg, N. Y.
1918 Blake, Eugene M., New Haven, Conn.
1895 Blake, Joseph A., Tucson, Ariz.
1924 Blancard, William, Roxbury, Conn.
1908 Blumer, George, New Haven, Conn.
1927 Boltz, Oswald H., Binghamton, N. Y.
1919 Bonnell, Clarence H., Rye, N. Y.
1930 Booth, Arthur Woodward, Elmira, N. Y.
1897 Booth, Burton S., Troy, N. Y.
1931 Bourke, Victor G., Livingston Manor, N. Y.
1916 Bradbury, Samuel, Philadelphia, Pa.
1929 Branham, Vernon, Albany, N. Y.
1900 Brooks, Frank T., Litchfield, Conn.
1897 Brouner, Walter B., Asbury Park, N. J.
1907 Brown, David Chester, Danbury, Conn.
1915 Brown, Lawrason, Saranac Lake, N. Y.
1922 Brown, Sanger, 2nd, Albany, N. Y.
1905 Brownlee, Harris F., Danbury, Conn.
1922 Burlingame, C. C., Hartford, Conn.
*1904 Canfield, R. Bishop, Ann Arbor, Mich.
1917 Caples, Byron H., Reno, Nev.
1928 Cattell, Henry W., Burlington, N. J.
1923 Cavanaugh, Thomas E., Springfield, Mass.
1906 Chapman, Charles F., Mt. Kisco, N. Y.
1928 Cheever, Austin W., Boston, Mass.
1905 Chisholm, William A., Nova Scotia, Canada.
1911 Chittenden, Arthur S., Binghamton, N. Y.
1925 Christensen, Frederick C., Racine, Wis.
1930 Clarke, Thomas Wood, Utica, N. Y.
1885 Coe, Henry C., Washington, D. C.

- 1917 Cofer, Leland E., Palm Beach, Fla.
 *1897 Comstock, George F., Saratoga Springs, N. Y.
 1907 Conaway, Walt P., Atlantic City, N. J.
 1913 Conley, Walter H., Abroad.
 1904 Connell, Karl, Winton Lodge, Branch, N. Y.
 1920 Corbusier, Harold D., Plainfield, N. J.
 1927 Cosgrave, Millicent M. A., Versailles, France.
 1887 Currier, Charles G., Bernardsville, N. J.
 1932 Currier, Gilman Sterling, Bernardsville, N. J.
 1906 Curry, Grove P. M., Mt. Kisco, N. Y.
 1929 Cutler, Max, Chicago, Ill.
 1922 Cutter, William D., Chicago, Ill.
 1913 Davis, Fellowes, Jr., Paris, France.
 1911 Day, Fessenden L., Bridgeport, Conn.
 1879 De Garmo, William B., Coral Gables, Fla.
 1927 De Graff, Arthur C., London, England.
 1911 Derby, Richard, Oyster Bay, L. I., N. Y.
 1904 Divine, Alice, Ellenville, N. Y.
 1884 Dixon, George A., Paris, France.
 1930 Doan, Charles Austin, Columbus, Ohio.
 1895 Dobson, William G., Poughkeepsie, N. Y.
 1926 Dowling, J. Ivimey, Albany, N. Y.
 1924 Dye, John Sinclair, Waterbury, Conn.
 1920 Eaton, Henry Douglas, Los Angeles, Calif.
 1921 Elwyn, Herman, Chicago, Ill.
 1906 Estes, William L., S. Bethlehem, Pa.
 1923 Farnell, Frederick J., Providence, R. I.
 1885 Farrington, William H., Raubsville, Pa.
 1922 Fauntleroy, Archibald M., Ossining, N. Y.
 1928 Finch, Lew Henri, Amsterdam, N. Y.
 1911 Fitz, George W., Peconic, L. I., N. Y.
 1912 Fitzgerald, Clara P., Worcester, Mass.
 1894 Flint, Austin, Millbrook, N. Y.
 1919 Flynn, Thomas J., Brooklyn, N. Y.
 1913 Garcin, Ramon D., Richmond, Va.
 1920 Gardner, Charles W., Bridgeport, Conn.
 1922 Garvin, William C., Binghamton, N. Y.
 1932 Gillette, David F., Syracuse, N. Y.

- 1929 Godfrey, Edward S., Jr., Albany, N. Y.
1897 Graves, Wm. B., Southport, Conn.
1908 Greenway, James C., New Haven, Conn.
1932 Gregg, Donald, Wellesley, Mass.
1901 Griffith, Frederic, Belmar, N. J.
1927 Haggart, Gilbert E., Boston, Mass.
1896 Hallock, Frank K., Cromwell, Conn.
1932 Hamilton, Samuel W., White Plains, N. Y.
1920 Hammond, Robert B., White Plains, N. Y.
1919 Hartshorn, Willis E., New Haven, Conn.
1921 Harvey, Samuel Clark, New Haven, Conn.
1897 Haynes, Irving S., Plattsburg, N. Y.
1913 Hebert, Paul Z., Los Angeles, Calif.
1921 Heddens, Vernon O., Pasadena, Calif.
1910 Henderson, Alfred C., Stamford, Conn.
1911 Herring, Robert A., Washington, D. C.
1915 Hicks, Horace M., Amsterdam, N. Y.
1915 Hill, Miner C., Oyster Bay, L. I., N. Y.
1915 Holding, Arthur F., Albany, N. Y.
1927 Holters, Otto R., Asbury Park, N. J.
1915 Howland, De Ruyter, Stratford, Conn.
1918 Huffman, Otto V., Mt. Kisco, N. Y.
1916 Hughes, Frederic J., Plainfield, N. J.
1923 Hutchison, Fred R., Huntingdon, Pa.
1903 Hyde, Fritz Carleton, Greenwich, Conn.
1920 Isham, Max K., Cincinnati, Ohio.
1931 James, Bart Mulford, Bernardsville, N. J.
1908 Jameson, James W., Concord, N. H.
1912 Jean, George W., Santa Barbara, Calif.
1918 Kahn, Morris H., Paris, France.
1906 Kann, Ulysses S., Binghamton, N. Y.
1925 Kempf, Edward John, Wading River, L. I., N. Y.
1927 Klein, Alvin W., Stockbridge, Mass.
*1922 Klein, Eugene, Tucson, Ariz.
1932 Krieger, William Andrew, Poughkeepsie, N. Y.
1916 Lambert, Robert A., Paris, France.
1931 Lane, Clarence Guy, Boston, Mass.
1916 Lane, John E., New Haven, Conn.

- 1912 Lathrope, George H., Morristown, N. J.
- 1923 Lawrence, Watson A., White Plains, N. Y.
- 1926 Lawton, Richard John, Terryville, Conn.
- 1896 Leach, Philip, U. S. N.
- 1910 Leake, James Payton, Washington, D. C.
- 1926 Leshin, Hiram R., Port Chester, N. Y.
- 1924 Levinson, Bernard, Freeport, L. I., N. Y.
- 1912 Longcope, Warfield T., Baltimore, Md.
- 1894 Lowe, Russell W., Ridgefield, Conn.
- 1904 Lynch, Robert J., Bridgeport, Conn.
- 1927 MacAusland, W. Russell, Boston, Mass.
- 1909 MacCallum, William G., Baltimore, Md.
- 1924 McCann, William S., Rochester, N. Y.
- 1904 McCullagh, Samuel, Santa Barbara, Cal.
- 1908 McGavock, Edward P., Richmond, Va.
- 1928 McGraw, Arthur B., Grosse Pointe Village, Mich.
- 1920 Mackenzie, George M., Cooperstown, N. Y.
- 1931 McKiernan, Robert L., New Brunswick, N. J.
- 1885 McKim, W. Duncan, Washington, D. C.
- 1920 Maddren, William H., Freeport, L. I., N. Y.
- 1931 Madill, Grant C., Ogdensburg, N. Y.
- 1928 Marcoglou, Angelos E., Athens, Greece.
- 1899 Marvel, Philip I., Atlantic City, N. J.
- 1884 Mendelson, Walter, Philadelphia, Pa.
- 1923 Mendez, Albert A., Punta San Juan, Cuba.
- 1919 Mendillo, Anthony J., New Haven, Conn.
- 1920 Merriman, M. Heminway, Waterbury, Conn.
- 1926 Metzger, Jeremiah H., Tyrone, N. M.
- 1905 Meyer, Adolf, Baltimore, Md.
- 1907 Mial, L. Le May, Morristown, N. J.
- 1900 Miles, Henry S., Bridgeport, Conn.
- 1910 Milne, Lindsay S., Kansas City, Mo.
- 1912 Morgan, William Gerry, Washington, D. C.
- 1921 Morrissey, Michael J., Hartford, Conn.
- 1916 Mott, Walter W., White Plains, N. Y.
- 1930 Mullins, Samuel F., Danbury, Conn.
- 1892 Munger, Carl E., Waterbury, Conn.
- *1910 Murphy, Deas, Litchfield, Conn.

- 1927 Murray, Henry A., Jr., Boston, Mass.
1932 Nelms, Homer L., Albany, N. Y.
1916 Neuman, Leo H., Albany, N. Y.
1923 Neumann, Theodore W., Central Valley, N. Y.
1902 Nicoll, Matthias, Jr., Rye, N. Y.
1897 Nisbet, James D., Van Wyck, S. C.
1913 Ober, George E., Bridgeport, Conn.
1930 O'Connor, Francis W., San Juan, Porto Rico.
1906 Oertel, Horst, Montreal, Canada.
1910 Oppenheimer, Frederick G., San Antonio, Texas.
1897 Orleman-Robinson, Daisy M., Albany, N. Y.
1927 Overton, Frank, Patchogue, L. I., N. Y.
1919 Painter, Henry McM., Paris, France.
1912 Parker, Edward O., Greenwich, Conn.
1932 Parran, Thomas, Jr., Albany, N. Y.
1894 Parry, Angenette, Huntington, L. I., N. Y.
1909 Parry, Eleanor, Huntington, L. I., N. Y.
1893 Paton, Stewart, Baltimore, Md.
1920 Patterson, Daniel C., Bridgeport, Conn.
1910 Pearson, Henry, Brownfield, Me.
1919 Pellini, Emil J., Peekskill, N. Y.
1923 Penfield, Wilder G., Montreal, Canada.
1922 Perkins, C. Winfield, Norwalk, Conn.
1924 Phillips, Frank L., New Haven, Conn.
1896 Pierson, Samuel, Stamford, Conn.
1898 Pilgrim, Charles W., Central Valley, N. Y.
*1893 Pritchard, William B., Princess Anne, Md.
1926 Purdy, Sylvanus, White Plains, N. Y.
1889 Quinlan, Francis J., Amawalk, N. Y.
1922 Rainey, John J., Troy, N. Y.
1919 Raynor, Mortimer W., White Plains, N. Y.
1909 Reid, George C., Rome, N. Y.
1930 Reifenstein, Edward C., Syracuse, N. Y.
1928 Reilly, Thomas F., Springfield, Mass.
1916 Reynolds, Harry S., Hartford, Conn.
1921 Richardson, Henry B., Darien, Conn.
1932 Richardson, Ralph A., Bristol, Conn.
1905 Riggs, Austen Fox, Stockbridge, Mass.

- 1917 Robert, Daniel R., New Lebanon Center, N. Y.
 1925 Roberts, Edward R., Bridgeport, Conn.
 1904 Robertson, Joseph A., Dallas, Tex.
 1901 Robinovitch, Louise G., Golden, Colo.
 1920 Robinson, Horace Eddy, Pleasantville, N. Y.
 1924 Rooney, James Francis, Albany, N. Y.
 1894 Root, Edward K., Hartford, Conn.
 1931 Ross, William H., Brentwood, L. I., N. Y.
 1896 Rushmore, Edward C., Tuxedo Park, N. Y.
 1920 Russell, Thomas Hubbard, New Haven, Conn.
 1927 Russell, William L., White Plains, N. Y.
 1913 Russell, Worthington S., Woodbury Falls, Orange
 Co., N. Y.
 1928 Ryder, Morton, Rye, N. Y.
 1905 Sadlier, James E., Poughkeepsie, N. Y.
 1907 Sauer, J. George, Petersburg, Fla.
 1927 Savarese, Melchior F. R., Derby, Conn.
 1893 Schaulfler, William G., Princeton, N. J.
 1896 Schavoir, Frederick, Stamford, Conn.
 1922 Schwatt, Herman, Sanatorium, Colo.
 1911 Scruton, William A., Abroad.
 1925 Seecof, David P., Cleveland, Ohio.
 1929 Shamaskin, Arnold, Bedford Hills, N. Y.
 1904 Sharp, Edward A., Buffalo, N. Y.
 1926 Sheahan, William L., New Haven, Conn.
 1925 Simpson, Charles A., Washington, D. C.
 1915 Slocum, Harry B., Long Branch, N. J.
 1909 Smart, Isabelle T., Manasquan, N. J.
 1914 Smith, Dorland, Bridgeport, Conn.
 1908 Smith, E. Terry, Hartford, Conn.
 1927 Smith, Ernest B., Philadelphia, Pa.
 1909 Smith, George Milton, Waterbury, Conn.
 1921 Smith, Scott L., Poughkeepsie, N. Y.
 1920 Snyder, William H., Newburgh, N. Y.
 1908 Sorapure, Victor E., London, England.
 1894 Spence, Daniel B., Morristown, N. J.
 1914 Sperry, Frederick N., New Haven, Conn.
 1932 Standish, E. Myles, Hartford, Conn.
 1915 Stone, Harry Russell, Clinton, Conn.
 1909 Storey, Thomas A., Stanford Univ., Calif.

- 1912 Stover, Charles, Amsterdam, N. Y.
1907 Stratton, Edward A., Danbury, Conn.
1929 Strauss, Maurice J., New Haven, Conn.
1913 Strobell, Charles W., San Diego, Calif.
1917 Sweet, Charles C., Ossining, N. Y.
1932 TenBroeck, Carl, Princeton, N. J.
1918 Terry, Benjamin T., Rochester, Minn.
1918 Thoms, Herbert, New Haven, Conn.
1911 Tileston, Wilder, New Haven, Conn.
1895 Toms, S. W. Spencer, Nyack, N. Y.
1924 Tooker, Harold Clifton, Springfield, Mass.
1932 Tribble, George Barnet, Washington, D. C.
1923 Turrell, Guy H., Smithtown Branch, L. I., N. Y.
1916 Vander Bogert, Frank, Schenectady, N. Y.
1902 Van Vranken, Gilbert, Altadena, Calif.
1928 Vessie, Percy R., Greenwich, Conn.
1924 Vier, Henry John, White Plains, N. Y.
1896 Vietor, Agnes C., Boston, Mass.
1905 von Tiling, Johannes H. M. A., Poughkeepsie, N. Y.
1931 Voss, Fred H., Kingston, N. Y.
1907 Wadsworth, Augustus B., Albany, N. Y.
1918 Wahlig, Herman G., Sea Cliff, Nassau Co., N. Y.
1904 Wainwright, Jonathan M., Scranton, Pa.
1889 Waldo, Ralph, Westhampton, N. Y.
1904 Walker, Emma E., Rockfall, Conn.
1910 Wallin, Mathilda K., Elmsford, N. Y.
1931 Warner, George H., Bridgeport, Conn.
1915 Warner, John W., Washington, D. C.
1928 Warshaw, David, Albany, N. Y.
1931 Webb, Gerald Bertram, Colorado Springs, Colo.
1925 Weigel, Elmer P., Plainfield, N. J.
1928 Weil, Arthur, Chicago, Ill.
1932 Weise, Ellwood C., Bridgeport, Conn.
*1921 Wertheimer, Herbert G., Pittsburgh, Pa.
1922 West, Theodore Stephen, Port Chester, N. Y.
1909 White, Davenport, Washington, D. C.
1928 White, John F., Port Chester, N. Y.
1932 White, William Charles, Washington, D. C.

- 1917 Wise, Lester D., Long Branch, N. J.
- 1905 Wolff, Henry A., Pasadena, Calif.
- 1921 Woodland, Edward E., Brooklyn, N. Y.
- 1926 Wyatt, Bernard L., Tucson, Ariz.
- 1924 Wynkoop, Edward J., Syracuse, N. Y.
- 1923 Yudkin, Arthur M., New Haven, Conn.

ASSOCIATE FELLOWS

- 1928 Achilles, Edith M., New York, N. Y.
- 1928 Armstrong, Clairette P., New York, N. Y.
- 1912 Beard, Stanley Drew, Pearl River, N. Y.
- 1932 Benedict, Stanley R., New York, N. Y.
- 1930 Benson, Charles Emile, New York, N. Y.
- 1930 Blanchard, Kenneth C., New York, N. Y.
- 1926 Bodecker, Charles F., New York, N. Y.
- 1930 Bowerman, Walter G., Leonia, N. J.
- 1932 Brand, Erwin, New York, N. Y.
- 1929 Bryant, Louise Stevens, Bronxville, N. Y.
- 1932 Cahn, Lester R., New York, N. Y.
- 1930 Carr, Malcolm W., New York, N. Y.
- 1928 Chambers, Robert, New York, N. Y.
- 1930 Clarke, H. T., New York, N. Y.
- 1922 Cooke, Elizabeth, Stamford, Conn.
- 1925 Corwin, E. H. L., New York, N. Y.
- 1930 Dakin, Henry D., Scarborough-on-Hudson, N. Y.
- 1910 Davenport, Charles B., Cold Spring Harbor, N. Y.
- 1930 Detwiler, Samuel R., New York, N. Y.
- 1928 Dunning, William B., New York, N. Y.
- 1920 Fine, Morris S., Battle Creek, Mich.
- 1927 Flinn, Frederick B., New York, N. Y.
- 1926 Folks, Homer, New York, N. Y.
- 1927 Franken, Sigmund W. A., New York, N. Y.
- 1930 Fry, Henry J., New York, N. Y.
- 1928 Gies, William J., New York, N. Y.
- 1932 Goebel, Walther F., New York, N. Y.
- 1932 Goldforb, Abraham J., New York, N. Y.
- 1927 Green, Leo, New York, N. Y.
- 1914 Greenwald, Isidor, New York, N. Y.
- 1911 Harris, Isaac F., Tuckahoe, N. Y.

- 1928 Hartman, Leroy L., New York, N. Y.
1925 Heft, Hattie Louise, New York, N. Y.
1930 Hellman, Milo, New York, N. Y.
1930 Hirschfeld, Isador, New York, N. Y.
1930 Holmes, Joseph L., New York, N. Y.
1930 Hopkins, Harry L., New York, N. Y.
1932 Kahn, Morton C., New York, N. Y.
1927 Kingsbury, John A., New York, N. Y.
1930 Kleiner, Israel S., Brooklyn, N. Y.
1928 Kopeloff, Nicholas, New York, N. Y.
1923 Krasnow, Frances, New York, N. Y.
1932 Landis, Carney, New York, N. Y.
1905 Lee, Frederic S., New York, N. Y.
1921 Little, Clarence C., New York, N. Y.
*1904 Lusk, Graham, New York, N. Y.
1928 McCaffrey, Francis S., New York, N. Y.
1931 McFarland, Ross A., New York, N. Y.
1926 Miller, Edgar Grim, Jr., New York, N. Y.
1928 Myers, Chester N., Yonkers, N. Y.
1923 Myers, Victor C., Cleveland, Ohio.
1927 Neuwirth, Isaac, New York, N. Y.
1928 Noback, Gustave J., New York, N. Y.
1932 Northrop, John H., Princeton, N. J.
1927 Oppenheimer, Enid Muriel, New York, N. Y.
1932 Osterhout, W. J. V., New York, N. Y.
1928 Palmer, Bissell B., New York, N. Y.
1927 Paulsen, Alice E., Bronxville, N. Y.
1931 Paynter, Richard H., Brooklyn, N. Y.
1929 Renshaw, Raemer Rex, New York, N. Y.
1927 Scott, Ernest L., New York, N. Y.
1918 Seaman, Emily C., New York, N. Y.
1931 Shuman, Harry Benjamin, Boston, Mass.
1928 Smith, Bertram G., New York, N. Y.
1929 Smith, Homer Wm., New York, N. Y.
1930 Smith, Philip E., New York, N. Y.
1928 Sobotka, Harry H., New York, N. Y.
1904 Soper, George A., Great Neck, L. I., N. Y.
1926 Strong, Oliver Smith, New York, N. Y.

- 1930 Sydenstricker, Edgar, New York, N. Y.
 1928 Tallman, Gladys G., New York, N. Y.
 1928 Torrey, Harry Beal, Stanford Univ., Calif.
 1928 Torrey, John C., New York, N. Y.
 1927 Tracy, William D., New York, N. Y.
 1932 Van Slyke, Donald D., New York, N. Y.
 1928 von Wedel, Hassow O., Ardsley-on-Hudson, N. Y.
 1927 Waugh, Leuman M., New York, N. Y.
 1927 Weinberger, Bernard W., New York, N. Y.

RECAPITULATION

	<i>Number</i>	<i>Vacancies</i>
Resident Fellows	1674	26
Non-Resident Fellows	235	165
Associate Fellows	76	324
Fellows on Exempt List	150	
Fellows on Teaching or Research List	95	

Number of Resident Fellows by Borough:

Manhattan	1430
Bronx	38
Brooklyn	69
Richmond	4
Queens	22
Outside of Greater New York	111

HONORARY FELLOWS

- Abel, John Jacob, Sc.D., LL.D. Baltimore.
 Archibald, Edward William, M.D. Montreal.
 Barany, Robert, M.D. Upsala, Sweden.
 Bastinelli, Raffaele, M.D. Rome.
 *Billings, Frank, M.D., Sc.D., D.S.M. Chicago.
 Bordet, Jules, M.D. Brussels.
 Chagas, Carlos. Rio de Janiero.
 *Cheyne, Sir William Watson, Bt., K.C.M.G., M. B.,
 F.R.C.S., LL.D., D.Sc., F.R.S. London.

- Chittenden, Russell Henry, Ph.B., Ph.D., LL.D. New Haven.
- Curie, Madame Marie Sklodowska, D.Sc. Paris.
- Cushing, Harvey W., M.D., Sc.D., LL.D., F.R.C.S., D.S.M. Boston.
- de Schweinitz, George E., M.D., LL.D. Philadelphia.
- Dock, George, M.D., Sc.D. Pasadena.
- Farrand, Livingston, M.D., LL.D. Ithaca.
- Finney, John M. T., M.D., F.R.C.S., D.S.M. Baltimore.
- Fournier, Alfred, M.D. Paris.
- Head, Sir Henry, M.D., F.R.C.P., LL.D., F.R.S. London.
- Hopkins, Sir Frederick Gowland, M.B., D.Sc., LL.D., F.R.C.P., F.R.S. Cambridge.
- Jackson, Chevalier, M.D. Philadelphia.
- Jadassohn, Josef, M.D. Breslau.
- *Keen, William Williams, M.D., LL.D., F.R.C.S. Philadelphia.
- Kitasato, S., M.D. Tokio.
- Leriche, René, M.D., D.Sc. Strasbourg.
- Lewis, Sir Thomas, C.B.E., M.D., F.R.C.P., D.Sc., F.R.S. London
- Marie, Pierre, M.D. Paris.
- Martin, Sir Charles James, C.M.G., M.B., D.Sc., LL.D., F.R.S. London.
- Matas, Rudolph, M.D., LL.D., F.A.C.S. New Orleans.
- Moynihán, Rt. Hon. Lord Berkeley, K.C.M.G., C.B., LL.D., M.S., F.R.C.S. Leeds.
- Neufeld, Friedrich, M.D. Berlin.
- Newman, Sir George, K.C.B., M.D., D.C.L., LL.D. London.
- Pavlov, Ivan Petrovic, M.D. Leningrad.
- Putti, Vittorio, M.D. Bologna.
- Ramón y Cajal, Santiago, M.D. Madrid.
- Roux, Emile, M.D. Paris.
- Sherrington, Sir Charles S., O.M., G.B.E., M.D., LL.D., F.R.S. Oxford.
- Smith, Theobald, M.D., Sc.D. Princeton.

- *Thayer, William Sydney, M.D., LL.D., D.S.M. Baltimore.
von Müller, Friedrich, M.D. Munich.
Welch, William Henry, A.B., M.D., LL.D. Baltimore.
-

CORRESPONDING FELLOWS

- Castex, Mariano R., Professor of Clinical Medicine, Buenos Aires.
Clerc, P., Professor of Medical Pathology, Paris.
Faber, Knud H., Professor of Medicine, Copenhagen.
Fernandez, Francisco Maria, Sanitarian, Havana.
Fraser, John Smith, Oto-Laryngologist, Edinburgh.
Govaerts, Paul, Internist, Brussels.
Kappers, Cornelius Ubbo Ariens, Neuro-Anatomist, Amsterdam.
Lichtwitz, Leopold, Professor of Internal Medicine, Altona.
Moore, Henry Francis, Professor of Medicine, Dublin.
Pick, Ernst Peter, Professor of Pharmacology, Vienna.
Poll, Heinrich, Professor of Anatomy, Hamburg.
Schmieden, Viktor Gottfried O., Professor of Surgery, Frankfurt
Sierra, Lucas, Professor of Clinical Surgery, Santiago.
Snapper, I., Professor of Pharmacology, Amsterdam.
Syllaba, Ladislav, Professor of Pathology, Prague.
Vallery-Radot, Joseph Louis Pasteur, Internist, Paris.
Wilson, Charles McMoran, Dean, St. Mary's Medical School, London.
-

BENEFACTORS

- | | |
|-------------------------------------------|--------------------------------|
| *Agnew, Cornelius Rea,
M.D., New York. | *Brown, James M.,
New York. |
| *Baker, George F.,
New York. | *Bruce, Frederick T. |

- *Cleveland, Hon. Grover,
Princeton, N. J.
- *Curtis, Henry Holbrook,
M.D., New York.
- *Cushman, James S., M.D.,
New York.
- *Dodge, William E.,
New York.
- *Draper, William Henry,
M.D., New York.
- *Dubois, Abram, M.D.,
New York
- *Farnham, Horace Putnam,
M.D., New York.
Farnham, Mrs. Eliza C.,
New York.
- *Flower, Hon. Roswell P.,
New York.
- *Ford, James B., New York.
- *Fowler, Edward Payson,
M.D., New York.
Harkness, Edward S.,
New York.
- *Harriman, Mrs. E. H.,
New York.
- *Herrick, Everett, M.D.,
New York.
- *Hosack, Alexander E.,
M.D., New York.
- *Hosack, Mrs. Celine B.,
New York.
- *Inslee, S., New York.
- *Jacobi, Abraham, M.D.,
New York.
- *James, D. Willis,
New York.
- *James, Walter B., M.D.,
New York.
- Jenkins, Mrs. Helen Hart-
ley, New York.
- *Kennedy, John S.,
New York.
- Ladd, Mrs. Kate Macy,
New York.
- *Loomis, Alfred Lee, M.D.,
New York.
- *Meyer, Jacob, New York.
- *Mills, D. Ogden, New York.
- *Morgan, J. Pierpont,
New York.
- *Purple, Edwin Ruthven,
New York.
- *Purple, Samuel Smith,
M.D., New York.
- *Starr, Charles J.,
New York.
- *Starr, M. Allen, M.D.,
New York.
- Tucker, Carll, New York.
- Tucker, Mrs. Marcia Brady,
New York.
- Vanderbilt, Frederick W.,
New York.
- Whitney, Mrs. Harry Payne,
New York.
- Wilson, Margaret Barclay,
M.D., New York.
- *Woerishoffer, Mrs. Anna,
Vienna.
- *Woerishoffer, Charles F.,
New York.
- *Wood, William H. S.,
New York.

NOTES

DATES OF ACADEMY MEETINGS

STATED MEETINGS

1st and 3rd Thursdays.

SECTION MEETINGS

Dermatology and Syphilology, 1st Tuesday.

Surgery, 1st Friday.

Neurology and Psychiatry, 2nd Tuesday.

Historical and Cultural Medicine, 2nd Wednesday of November, January, March and May.

Pediatrics, 2nd Thursday.

Ophthalmology, 3rd Monday.

Medicine, 3rd Tuesday.

Genito-Urinary Surgery, 3rd Wednesday.

Otolaryngology, 3rd Wednesday.

Orthopedic Surgery, 3rd Friday.

Obstetrics and Gynecology, 4th Tuesday.

TRUSTEES, COUNCIL AND COMMITTEE MEETINGS

Trustees, 4th Wednesday.

Council, 4th Wednesday.

Committee on Admission, 1st Wednesday.

Committee on Library, 2nd Tuesday.

Public Health Relations Committee, Mondays.

Committee on Medical Education, 2nd Thursday.

AFFILIATED SOCIETIES

Harvey Society, 3rd Thursday.

New York Pathological Society, 4th Thursday.

Society for Experimental Biology and Medicine, 3rd Wednesday.

New York Roentgen Society, 3rd Monday.

HOSACK BED FOR SICK AND NEEDY PHYSICIANS

Attention is directed to the following extract from the will of Mrs. Celine B. Hosack :

“I do give and bequeath unto my executors, hereinafter named, the sum of Ten Thousand Dollars, in trust to apply and pay the same (or so much thereof as may be necessary) to The Roosevelt Hospital in the City of New York, to purchase a bed which, in memory of my husband, shall be known as the Hosack Bed, and which shall be occupied from time to time by such sick and needy physicians as

may for that purpose be named or designated by the President and Treasurer for the time being of The New York Academy of Medicine."

DONATIONS TO THE LIBRARY FUNDS

Donations and bequests are solicited by The New York Academy of Medicine for the maintenance and expansion of the Library.

A donation or bequest of \$5,000 or more will provide for a special library fund, the income of which may be used for the general purposes of the Library or restricted to the purchase of books and periodicals, as the donor or testator may indicate.

FORM OF BEQUESTS

The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto "The New York Academy of Medicine" of the City of New York, State of New York, a corporation duly incorporated by the Legislature of the State of New York by an act entitled, "An Act to Incorporate The New York Academy of Medicine," passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 25, 1924, . . .

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†Deceased

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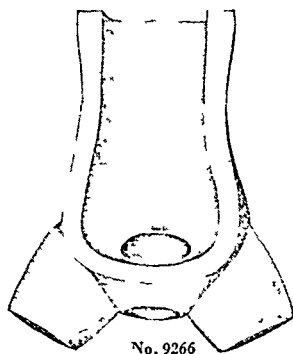
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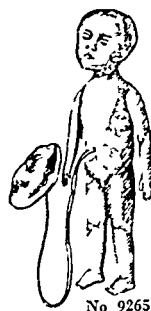
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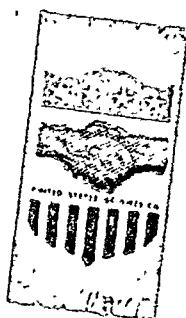
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CONTENTS

Rise of the Hospital Idea, E. H. L. Corwin.....	111
The Psychiatric Approach of the Practitioner to His Patients, Mortimer W. Raynor.....	130
Review of "Poliomyelitis," William Ropes May.....	148
Recent Accessions to the Library.....	150
Proceedings of Academy Meetings.....	152
Fellows Elected February 2, 1933.....	157
Cost of Current Medical German Periodicals, Janet Doe....	158
Graduate Fortnight Exhibit Illustrating the History of the Evolution of the Knowledge of Cancer.....	160
Hermann Michael Biggs Memorial Lecture.....	160
Deaths of Fellows of the Academy.....	161

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BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

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No. 3

RISE OF THE HOSPITAL IDEA*

E. H. L. CORWIN

Even if I were an historian and had more than a superficial knowledge about the evolution of hospitals and its literature, I could not do justice to the subject as comprised in the title, within the compass of time allotted to the presentation of this discourse. The subject presents a challenge to those who have the leisure and a penchant for historical inquiry, the necessary insight and discernment, and the ability to write well. With the exception of several monographs of excellence, among which particular mention should be made of "The Romance of the British Voluntary Hospital Movement" by Evans and Howard, there exists no book on the history of hospitals which does full justice to the subject in its entirety.

Data as recorded by one historian are often at variance with those of another, and in many instances asseverations are made without sufficient documentation, or are based on tenuous foundations. It may perhaps be a task which the Department of the History of Medicine at Johns Hopkins University, would consider as worth while to undertake. I have always regretted that the Section on Historical and Cultural Medicine of the Academy meets but four times in the year, as there are so many interesting old books and tracts which should be taken off the shelves and aired in seminar discussions to the benefit of all concerned.

*Paper presented before the Academy Section on Historical & Cultural Medicine, January 12, 1933.

Historical research appeals to those of us who are interested in tracing the evolution of ideas and institutions, and who like to look backwards and appraise the efforts of the great minds of the past in evaluating the dimly discernible trends and tendencies of their own time and in moulding their environment. To me it has always been of very great interest to see how an apparently insignificant shoot is often destined to grow to full fruition, while something that to our limited understanding looks important and portentous, dwindles after a brief period of existence. Historical research quickens the imagination and often tempers such conceit as we may have about our own wisdom.

In the present essay I am not going back to the Babylonians and Egyptians, nor to ancient Greece and Rome; neither will I recite the interesting contributions of Islam nor remind you of the long and tortuous tale of the Middle Ages. I shall but attempt to delineate sketchily a few étapes in the evolution of the hospital idea in the United States from the time of Pasteur and Lister or thereabouts. It is only with the development of scientific medicine, as we know it today, that the hospital became what it is now, an institution for the care of the sick, and not an asylum or hospice for the lame, the weary, the cripples and the paupers. Here and there I will revert to the European prototypes of our present-day institutions.

Hospitals of the Past

It has been said that hospitals constitute one of the highly significant expressions of the state of civilization of a nation. If this be true, then civilization, characterized by the efficiency of its ways and the considerateness of its spirit, is of very recent origin.

With not very many exceptions, the hospitals of the past, although supposedly expressions of the charitable impulses of humankind, were loathsome institutions, breeders of infection, and as much feared by the sick as they were repugnant to the senses of sight and smell. Those who

have read John Howard's "Account of the Principal Lazarettos in Europe," 1785-86, or the descriptions of hospitals by Jacques René Tenon, or Florence Nightingale, or Jane Austen, or Charles Dickens and dozens of others, will appreciate that what I have just said is no exaggeration. Benjamin Rush called them "the sinks of human life," and in 1863 Dr. Charles Alfred Lee, of Albany, New York, made the following pessimistic remarks about the hospitals as he knew them: "It may be truly said that hospitals are in some measure the criteria of a nation's progress in civilization, and the measure of its cultivation of those charities which spring from the heart of a people imbued with philanthropic sentiments. And yet no institutions have been so abused and mismanaged as public hospitals. Originating in the purest benevolence, and supported with the most commendable liberality, they have not only in a great measure failed in accomplishing the objects in view, viz., the recovery of the largest number of sick men in the shortest possible time, but they have even aggravated the very evils they were designed to remove. The laws of sanitary science, imperfectly understood, it is true, until comparatively modern times, have been, for the most part, disregarded and ignored by those who have had these institutions especially in charge, until at length it became a serious question whether it would not prove a blessing to mankind if they were not abolished altogether." And later yet Dr. W. Gill Wylie described in the following words the conditions as existed at Bellevue Hospital in New York in 1872: "At that time, with rare exceptions, the nurses were ignorant and in some cases worthless characters, who accepted the impossible task of attending to and nursing from 20 to 30 patients each. There were no night-nurses, the night-watchmen—three in number to a hospital of eight hundred beds—were expected to give assistance to patients requiring attention during the night. The hospital building, originally an old prison and almshouse erected sixty years ago, had been added to, and was now a massive stone structure with three stories and a basement. The wards were only separated from each other by the intervening

partitions inclosing the water-closets and bath-rooms, which were without ventilation, except as they opened into the wards. . . . The sanitary condition of the hospital was shocking. . . . I saw, while on duty in the wards, patients die from septic diseases contracted in the wards, after the slightest surgical operations or injuries. From forty to sixty per cent of all amputations of limbs proved fatal." The general mortality in the hospital was 14.7 deaths in every 100 patients, and 8.7 in every 100 women confined died of puerperal fever.

The Pavilion System

The first attempt to provide a plan for the building of hospitals in modern times was made by the French Academy of Sciences in 1788. It laid the foundations for the pavilion system of hospital construction which still survives in many places abroad and in some of the hospitals in this country. With a few features which peculiarly belonged to these hospitals, the pavilions could easily have been interchanged for barracks or prisons. In his Report on Barracks and Hospitals, published by the U. S. War Department in 1870, Dr. J. S. Billings refers to the recommendations of the French Academy as embodying the "true principles of hospital construction as at present understood." In view of the fact that this report of the French Academy dominated hospital thought for more than a century, it may be of interest to state in a few words what the principal recommendations were: A hospital should consist of isolated pavilions; each ward should be 24 feet wide, from 14 to 15 feet high, and 115 feet long, and it should contain from 34 to 36 beds; and the windows should extend to the ceiling. This new type of hospital plan, known as the 'pavilion' plan, was an improvement on the 'block' or 'corridor' plans of the former hospitals and at the time when Dr. Billings wrote it was still "recognized as the one best suited to its purpose, the experience gained during the late War having contributed greatly to the recognition of its value in this country."*

*Page XX.

The First American Contribution

What is probably the first outstanding contribution in the field of hospital construction in the United States is to be found in a treatise published in 1861 by Dr. John Green, Fellow of the Massachusetts Medical Society. In this treatise are embodied the prize plans which had been previously prepared by the author in answer to an advertisement of a Committee of the City Council of Boston. In the preface he says that "the plans are in no sense a copy of any building in the United States or Europe or elsewhere, but are believed to combine the most valuable features of the best hospitals in France, Great Britain, and Germany." It is verily a remarkable treatise. It deals with the general principles of location of hospitals; the need of tax maintained institutions; economies of construction and maintenance; relation of the hospital to teaching; heating and ventilation, and the kind of furniture best suited for a hospital. I shall dwell upon it a bit because to my knowledge, this treatise which embodies the most advanced hospital thought of the time is not as well known as it deserves to be. To begin with, the author points out the need of a central location of a hospital for acute diseases; it should be easy of access to patients, physicians and students, and the site should be selected with due regard for its cost, as well as the purity of air, and good drainage. He then proceeds to differentiate between patients acutely ill for whom a hospital within the city limits is needed and those who suffer from infirmities or chronic diseases, the convalescents and the insane for whom provision should be made outside of the city limits. He stresses the point that a hospital for convalescents in the country should be connected with and under the same general direction as the hospital of which it is a branch. In planning a hospital, future enlargement should be anticipated and the hospital should be so designed as to make such extension possible without undue expense. He refutes the then popular notion that a hospital is "a sanitary evil" to the neighborhood by pointing out that experience in the most crowded cities of Europe is sufficient evidence to the contrary. He

would protect, however, the neighborhood against unsightly and repulsive objects by erecting the hospital buildings around a central court, thus effectively cutting off the patients from the view of neighbors and passers-by. In designing buildings he stresses the importance of providing direct sunlight, which he recognizes as having beneficial influence on the sick, and suggests that the wards be so placed as to admit both the morning and afternoon rays. The few patients who suffer from diseases of the eye or of the nervous system should be accommodated in moderately dark rooms. To guard against the untoward influence upon the patients of the noise on the streets, particularly those who are not inured to it by a previous residence in the city, he suggests double windows. The ventilation is to be supplied through a complicated system of flues, vents, fireplaces, etc. Proper ventilation will guard against "hospitalism," by which was meant, the spread of infections which take place within the hospitals. He maintains that "epidemic diseases are not the necessary condition of the association of the sick, even in somewhat crowded wards." He refers to an institution, near Boston, where no epidemic has ever appeared, and "at all times wounds heal in its wards as promptly as in private practice in the most rural districts." This unusual condition in the particular hospital, he ascribes to the peculiarly exposed situation of the hospital buildings, which insures at all times the most thorough ventilation, and to "the absence at that hospital of all drains, water-closets, etc., either within or beneath the buildings." "These conditions," he adds, "can scarcely ever be realized in a city institution." To guard against overcrowding of the hospital and to insure its utilization by those who are acutely ill, he suggests the organization of out-patient departments, because of the extreme economy of this form of treatment; the opportunity it affords for "quick yet accurate diagnosis" and of "continuing the treatment of convalescents, who may thus be discharged from the wards much sooner than would otherwise be provident." Among the diseases which can be most successfully treated in this way he mentions venereal and

skin diseases, most of the ophthalmic and aural conditions, and a great variety of medical and surgical diseases which "though they do not confine the patient to his room are nevertheless productive of much suffering." He provides for a layout of the out-patient department consisting of two suites of rooms in the first story. Each suite includes a consultation room, an ante-room, and two waiting-rooms for the reception of patients of the two sexes. The consultation rooms are provided with seats for fifty students each, and have a circular arena, for the physician and patient, of sixteen feet in diameter. Provision is made for parlors for the visiting medical officers and house pupils and accommodation for students and visitors. There are waiting-rooms in connection with the drug dispensary. The hospital plan devised by Dr. Green in 1861 reflected his conception of a hospital which was as profound as it was new and original.

It recognized that "a proper classification of patients is of the highest importance." The separation of patients by sexes in the medical, surgical, and obstetrical departments is insufficient. Many of these classes should be subdivided. The contagious diseases should be treated separately. Venereal disease patients should not be in the same wards with "other surgical cases." The need of separating ophthalmic and neurological cases has already been mentioned. Single rooms are of invaluable aid in managing nervous patients who "may suffer intensely from the ordinary sounds of even a well regulated ward." He was the first to point out that some of the patients required separate rooms either for their own comfort or that of others, and suggested that every ward should have connected with it a room for the dying or delirious patients, and a part of the hospital with separate rooms should be set apart for the "foul" cases as well as for the noisy and unmanageable ones. He also recommended a few single rooms to be devoted to private patients—"strangers of means sufficient to defray the expenses of their sickness, but without home or friends in the city." He likewise advocated separate rooms for parturient women. In spite of the con-

siderable number of separate rooms which the plan provides, the great majority of patients are accommodated in common wards where they can be "more advantageously treated."

The wards should not accommodate more than 30 patients. A ward of this size can be well supervised by one head nurse "residing constantly in the ward or in an adjacent room," and two assistants for day and night service, besides other occasional help. A small kitchen or work-room, bathroom, and at least two water-closets should be attached to each ward. He provides the hospital with a bath-house for hot, cold, and vapor baths and a separate accommodation for sulphur, saline, and other medicated baths. In seaport towns he suggests the pumping of sea water directly from the harbor. The most convenient location for the bath-houses is near the laundry for the same fires and hydraulic apparatus may be used for both departments. The theater for post-mortem examinations forms an indispensable part of every well appointed hospital, an autopsy of every patient dying in the hospital should be made for the verification and correction of diagnosis. The rooms adjoining the autopsy room are to contain vaults for the reception of bodies and for the preparation of them for burial. The most appropriate place for a chapel in the hospital is within the court. The plan provides for an operating theater under the central cupola on the second floor which is entirely given over to surgical wards.

The dwelling houses for the medical director, resident physicians, superintendent, and interns; a lodge for the porter, living quarters for servants; a kitchen and dining rooms; store-rooms; are all provided for within the confines of the hospital.

One interesting reason given in support of a city hospital is that it affords greater freedom in the utilization of patients for study and research than is possible in an ordinary charitable hospital.

I do not know whether the Boston City Hospital, when it was built, incorporated all the features of the prize essay

above described, but irrespective of whether or not they followed all the suggestions made, it seems to me that it marks the beginning of the modern era in hospital thought.

The Sanitary Engineering Era

The next period in hospital evolution concerns itself with heating and ventilation, and the provision of special hospitals. The outstanding hospital writer of the period was Dr. John S. Billings whose general treatises on the subject of hospitals deal almost exclusively with the importance of proper air conditioning. The problem of ventilation constitutes a curious chapter in the history of hospitals and the pre-occupation with it has had a retarding influence on the appearance of the more modern and economical type of hospital building. It was because of the difficulties in providing proper mechanical ventilation that hospitals were not built over two stories in height. In the essay preceding the outline of the plans for the Johns Hopkins Hospital, Billings deals at length with the importance of ventilation in relation to "these particles known as disease germs, contagia, microzymes, micrococci, bioplasms, germinal matter, etc." He warns that these organisms resist the action of weak alkalis, such as soap and water, to a surprising degree; "indeed, in some cases they seem to gain new powers in the latter fluid which is not a desirable cleansing agent in a hospital. They are destroyed by a sufficiently high temperature or if moist by subjecting them to solution of sulphurous acid and ozone and by a number of other agents, known as disinfectants." It is because of the persistence of these germs in cracks and crevices that he recommends that only a part of the hospital be made into a permanent structure and the other parts should be in temporary tents and frame buildings which from time to time should be superseded by new temporary structures. "No system of diluting the air," he says, "of an hospital ward will give absolute security from the action of contagion, and we can therefore understand why it is that the usual mode of ventilation can never afford perfect security against the hospital diseases, not even if we double

the cubic space, and triple the air supply usually considered sufficient." In this association it may be of interest to recall that Florence Nightingale in her "Notes on Hospitals" written over two decades before, advocated natural ventilation by open windows and open fireplaces as the only efficient means for procuring fresh air. "What is all the luxury of magnificent windows for," she asks, "but to admit fresh air? To shut up your patients tight in artificially warmed air is to bake them in a slow oven. Open the Lariboisière windows, warm it with open fires, drain it properly, and it will be one of the finest hospitals in the world" (pg.16, 3rd ed.).

Pest-houses and Insane Asylums

Special hospitals or colonies for the victims of leprosy, plague, smallpox and other highly contagious diseases date back quite far into the past. The chief maritime cities maintained quarantine stations with which lazarettos were associated. Some of these lazarettos, as the one at Venice, for example, in many regards of arrangement and medical organization, would be considered modern even now, judging by the description of it in John Howard's treatise. The interests of commerce demanded the application of efficient methods in warding off the spread of epidemics, and the segregation and isolation of the sick incidental to the task were enforced with a ruthlessness consonant with the political and ethical concepts of the time. Even more tragic was the fate of the mentally deranged. They were the objects of derision and torture and were classed with idiots and criminals, kept in cages and jails, beaten and sometimes put to death as persons possessed by the demon. "The position of the madman under the old hospital system is one of the saddest pages in human history, and as the historian of Bethlehem Hospital (The 'Bedlam' Hospital), the Rev. E. G. O'Donoghue observes, 'his martyrdom did not cease till well into the 19th century'." In that hospital the patients were without clothing, for it was held that lunatics could feel neither heat nor cold; they were kept in semi-dark cells, six or more in the same room, chained

by the arm, neck, or leg to the walls, and "in spite of the revolting and agonizing sight these must have presented, Bedlam was one of the fashionable sights of London, whither the grand folk and the vulgar rabble could go on payment of the small sum of one penny admission fee, which went towards the revenue of the hospital, and gave them the right to tease the unfortunate inmates" (Evans and Howard, p. 103).

The Domain of Medicine Extends to the Insane

The first hospital department for the insane on this continent was established in connection with the Hôtel Dieu at Quebec in 1639. This was followed by a similar provision in 1752 at the Pennsylvania Hospital. The first hospital exclusively for the care of the insane was established at Williamsburg, Va., in 1773, and thus began the recognition of the fact that the psychoses belong within the domain of medicine. As is well known, the dawn of humane treatment in this realm is associated with the names of Pinel, in France; William Tuke and his son, Samuel, in England; and Benjamin Rush, in America. The kindly Rush pleaded that physicians should treat deranged patients with respect, but the treatment he advocated included such measures as privation of food, strapping to restraint chairs known as "tranquilizers," pouring cold water under the coat sleeves, subduing maniacs by withdrawals of as much as 20 to 40 ounces of blood or by keeping them "in a standing posture, and awake, for four and twenty hours."

The Bloomingdale Asylum, modeled after Tuke's "York Retreat" was opened "by the bounty of the Legislature of the State of New York" in connection with the New York Hospital in 1821. Its express design was "to carry into effect that system of management of the insane, happily termed moral treatment, the superior efficacy of which has been demonstrated in several of the hospitals of Europe. . . . This mild and humane mode of treatment . . . may be considered as one of the noblest triumphs of pure and enlightened benevolence. But it is by no means the intention of the Governors to rely on moral, to the exclusion

of medical treatment. . . . Agriculture, horticulture and mechanical employments may be resorted to, whenever the inclination of the patient, or their probable beneficial effects may render them desirable. . . . Reading, writing, drawing, innocent sports, tending and feeding domestic animals, etc., will be encouraged as they may be found conducive to the recovery of patients. . . . The apartments of the house are adapted to the accommodation of the patients, according to their sex, degree of disease, habits of life, and wishes of their friends." The institution was located "about 7 miles from the City of New York near the Hudson River and facing the Bloomingdale Road," the spot where St. Luke's Hospital stands today.

With the evolution of psychiatry the old type of institution which was inherited from the monastic era, has been gradually modified. Thomas S. Kirkbride, of Philadelphia, who in 1854 published his treatise "On the Construction, Organization and General Arrangements of Hospitals for the Insane" is credited with the development of the improved type of hospital construction, although prior to him the "Association of Medical Superintendents of American Institutions for the Insane," which was organized in 1844, prepared "propositions" dealing with the building of hospitals. The propositions stressed the out-of-town location of hospitals for the insane, where ample pleasure grounds and gardens could be provided. The movement brought about an amelioration in the type of buildings and of sanitary surroundings. The Kirkbride plan consisted of the lateral type of buildings, of solid construction with the administration building in the center, and the wards in the wings. The more disturbed the patients were the further away were they accommodated from the administration building. As the hospitals grew in size and as both legislation and therapeutics demanded a better classification of patients, the old type of institution underwent changes. In some state hospitals the cottage plan construction was adopted.* In this connection it may

*For a more detailed account the reader is advised to consult Dr. George W. Henry's paper on "The Development of Hospital Care and Treatment

be of interest to mention that in Holland and Belgium the insane have been taken care of for centuries by the inhabitants of certain communes, such as Meer-en-Berg, in Holland, and Gheel in Belgium; these are the only countries in which the State has not assumed direct responsibility for the care of the mentally ill.

The Evolution of Specialties

Aside from the pest-houses and the insane asylums, the first special hospitals were those for eye diseases. This, at least, is true of London and Glasgow and Exeter, and New York. The Royal London Ophthalmic Hospital, known by its abbreviated title of "Moorfields" had its beginning in 1804 when the London Dispensary for the Relief of the Poor Afflicted with Eye Diseases was started. In 1805 Glasgow followed suit, and then Exeter in 1806. The first eye infirmary in New York was established in 1818 and three years later it was incorporated under the name of The New York Infirmary. Two years later a department for diseases of the ear was added. In 1856, after many peregrinations, the institution settled at its present site—Second Avenue and 13th Street. In time the hospitals for other specialties developed. In New York among the earliest special hospitals is the Woman's Hospital which is closely associated with the name of Dr. J. Marion Sims. Substantial grants were made by the City and the State toward the building of the institution. Then came the establishment of the Infirmary for Women and Children by the sisters Emily and Mary Blackwell in 1853. Richard Kershaw in his book on "Special Hospitals; Their Origin, Development and Relation to Medical Education," published in England in 1909, says that the "result of woman's enterprise in the hospital field is witnessed in many directions, notably in the establishment of institutions for the medical treatment of women by women." As the various specialties differentiated themselves from the main body of medicine and surgery, the demand for recognition ex-

of Mental Disease," published in the *Proceedings of the First International Hospital Congress*, held at Atlantic City, June, 1929.

pressed itself in the creation of special hospitals. Thus came into being hospitals for the diseases of the throat and nose; orthopedic conditions; diseases of childhood; tuberculosis; skin and cancer; neurology, and so forth.

The Preponderance of the Voluntary Effort

Barring the segregation of sufferers from pestilential diseases and from insanity, the state or the city did not consider the care of the sick as coming within the scope of its responsibility. Until comparatively recently the existence of institutions for the care of the sick was due almost in its entirety to individual benevolence or civic philanthropy.

It may be of interest to point out that with the exception of Bellevue Hospital and the City Hospital on Welfare Island, all of the hospital and out-patient development in New York, down to 1885, was due to private charity. In 1885 the Willard Parker Hospital was built as a city hospital, and three years later a site for another contagious disease hospital was bought by the then City of Brooklyn. This rather belated recognition on the part of the municipality toward the care of the sick poor holds true of all American cities. It was in keeping with British tradition and was in a measure due to the reluctance of entrusting the care of the sick to political governance. And yet it was at Bellevue Hospital that the first modern school for nurses was organized by a woman chosen for the task by Florence Nightingale, and it was at Bellevue that medical teaching led the way to further systematic organization. It was likewise in connection with Bellevue Hospital that the first ambulance service in the City was inaugurated for other than contagious disease cases. On the whole, however, it may be said that the voluntary, rather than the municipal, hospitals have been the pathfinders and leaders in the progressive evolution of the care of the sick, and in making the hospitals generally "safe for democracy." The building of pavilions for the

accommodation of pay patients in connection with the private charitable hospitals which was initiated in connection with St. Vincent's Hospital in New York, added, no doubt, to the prestige and raised the standards of these hospitals.

Out-Patient Clinics

Among the earliest medical institutions are the dispensaries. The New York Dispensary was established in 1791, the same year the New York Hospital was opened, to provide "assistance for that description of persons who, when deprived by the disease of the earnings of their daily labor, are also deprived of the means of procuring the medical assistance necessary for their relief." Many of the dispensaries had paid physicians who visited the sick poor in their homes. With the development of hospitals and the recognition of the importance of the interrelationship between the out-patient department and the hospital proper, came the enormous growth of the dispensary and the gradual subsidence to a vanishing point of domiciliary treatment by hospital agents. In the last three decades the O.P.D. Clinic, or dispensary, assumed staggering proportions. In 1900 there were in the country 150 such institutions, and in 1932—eight thousand. The number of patients treated in the clinics of New York City alone reaches about two million at the present time.

The Modern Features of Hospital Organization

It would be difficult and presumptuous on my part to try either to trace or evaluate every one of the evolutionary phases in our hospital organization. It would be even more difficult to appraise the services of individuals who galvanized or inspired the development. Just as in modern science generally, so in the present day complicated skein of hospital relationships, no new development comes in the *Deus ex machina* fashion. Whitehead in his "Science and the Modern World" pointed out that while Galileo's famous

experiment of dropping bodies of different weight from the Leaning Tower of Pisa could have been performed at any time during the preceding 5000 years, no discoveries in any of the modern sciences could have been made earlier than they were. The same applies to the development of the principal phenomena in the organization and functioning of the modern hospital. Bacteriology, histology, biochemistry, physics, and the other basic sciences are responsible for the existence of our hospital laboratories, and it is hard to assign their general incorporation within the hospital scheme to any one individual.

The improvement in the diagnosis and treatment of disease is likewise a collective achievement, although in so far as the change in medical teaching in the United States is concerned, recognition should be given to the work done by Dr. Abraham Flexner in his report on Medical Education published under the auspices of the Carnegie Foundation in 1910. He probably more than anyone else is responsible for the introduction of full-time professorships and for the subsequent change in the medical organization of our university hospitals. As long ago as 1877 Dr. W. Gill Wylie, to whose work I have already referred, said that "for more reasons than one, it is wrong for one physician to hold two or three hospital appointments at the same time. If he has a private practice to attend to besides preparing and delivering two or more lectures every week, it is utterly impossible for him to visit once every day his hospital patients and to do his duty toward them." Even to this very day this problem has not been adequately solved, although medical organization in our hospitals is on a much more satisfactory basis than it was two decades ago.

For the introduction of social service in hospitals we are no doubt indebted to Dr. Henry Dwight Chapin, of New York, and to Dr. Richard Cabot, of Boston. Dr. Cabot was also among the first in this century to stress the importance of proper organization of the out-patient department and in this connection the names of Dr. Charles N. B. Camac,

Dr. W. Gilman Thompson, and Dr. S. S. Goldwater should be mentioned.

To Miss M. Adelaide Nutting and Miss Annie W. Goodrich goes the credit for the development of our nurses' training schools and the good effect they had on raising hospital standards.

In the practical demonstration of the feasibility of a high type of institutional convalescence the name of Dr. Frederick Brush deserves recognition.

In the field of proper and scientific institutional care of patients suffering from chronic diseases the Robert Breck Brigham Hospital of Boston and the Montefiore Hospital of New York stand out most pre-eminently.

It is, however, very difficult to appraise individual contributions toward the great transformation which has taken place in the entire domain of organization, construction, and management of our hospitals. No doubt it was greatly influenced, on the one hand, by the growing appreciation on the part of the public of the importance of hospitals and the quickened sense of community responsibility for their proper maintenance and support, and, on the other hand, by the broader conception on the part of the medical profession of their responsibility to the community, the sick, and the advancement of medical science. The medical colleges and the scientific medical bodies, no doubt, had a large share in shaping the new outlook. The hospital administrators individually and through their associations, particularly the American Hospital Association which was established a little prior to the opening of the century, also exerted an enormous influence on the process of the transformation which has taken place. By going over the Transactions of the Annual Meetings of the American Hospital Association, one gets a picture of the number and complexity of the problems which were analyzed year after year, and decade after decade, by the administrators of hospitals and the outstanding leaders in the medical and nursing professions. In these discussions there reveals

itself the rise of the present day hospital idea. Among the men in that Association whose viewpoints and counsels prevailed may be mentioned Dr. George H. M. Rowe of the Boston City Hospital; Dr. C. Irving Fisher of the Presbyterian Hospital of New York; Dr. W. Gilman Thompson through whose influence more than that of any one individual the hospitals abandoned their former futile attempts at mechanical ventilation and came to a realization that small wards are more suitable than large ones to meet the different needs of various groups of patients; and Dr. S. S. Goldwater whose recognized executive gifts and whose ability judiciously to incorporate in the structural scheme the claims which each department of a hospital presents for due recognition, made him an outstanding figure in the hospital world.

In analyzing the influences which led to the improvement of our hospital work and organization a great measure of credit should be accorded to the American College of Surgeons and its standardization program. The State Boards of Social Welfare, the public health, civic and charity agencies helped to stimulate the hospital's recognition of its manifold community relationships and responsibilities.

Definition of the Modern Hospital Idea

If I were asked to describe briefly the concept of the modern hospital idea, and wherein it differs from the concepts of the past, I would say that it lies in the conscious effort which is being made to achieve the ultimate object, namely, the welfare of the patient, through a joint responsibility of all concerned. It is to this end that the present form organization of professional and executive staffs has been effected, the structural adaptation of the environmental facilities made and the interest of outside forces enlisted. It is the present day teamwork and all that has been done to render it possible that distinguishes the modern hospital from its predecessor of a generation ago. Toward this cooperative effort and joint responsibility all the forces within and without the hospital are being

brought into play. Hence the growing importance of the hospital in the community and its ever widening educational, civic, public health, and social welfare contacts and responsibilities.

Present-day Problems

Whether we have reached the ideal, I shall not attempt to say. On general principles, I suspect we have not. There are those who maintain that we have built our hospitals in too great units and that we have carried the size beyond the point of where the law of diminishing returns sets in. Some critics believe that the amount of space which our new hospitals devote to ancillary services is much too great in comparison with that allotted to the physical accommodation of the patients themselves. A recent calculation made by Mr. Edward F. Stevens, of Boston, the dean of the hospital architects in the United States, based on an analysis of a considerable number of hospitals of various types and sizes which were completed in the last few years in several cities, indicates that only 21 per cent of the available space is given over to actual accommodation for patients. Some maintain that our modern hospitals are too lavish in their appointments and extravagant in administration cost. Others point out that by building special hospitals or institutes, in connection with our stupendous medical centers, we are reverting to the 18th century idea of the pavilion system in a glorified form.

With the rest of the world, the hospital is now standing at the crossroads. The financial débâcle which has overtaken the world has temporarily suspended the building of new hospitals. The time, therefore, is particularly ripe to give very full consideration to the entire field as we see it today, and to appraise the evolution to date, with a view of directing it more consciously and more uniformly than has been the case up to a year or so ago. Have we over-hospitalized ourselves, particularly in the cities? Have we gone too far in advising the public to resort to hospitals? Have we provided a sufficiently large number of institu-

tions for the care of the chronics and the convalescents? Has the integration of the dispensary with the hospital proceeded along the line of best medical thought? Are our hospitals making the most of their opportunities for the advancement of medical science and the improvement of general medical practice? Are we making available to the general public the facilities which the hospitals can give extra-murally? Has there been a sufficient linkage between the hospitals and the public health movement or preventive medicine? Are the hospitals and the out-patient clinics, free and pay, engaged in an unfair competitive relationship with the medical practitioners? Can the modern hospital organization make possible a larger participation in hospital work on the part of "family physicians?" Is the very recent idea of recruiting large groups of the population for the broadening of hospital support through the purchase of hospital service on an insurance basis going to exert a beneficial or harmful influence on the hospitals themselves? Have we gone too far or not far enough in providing hospital care through taxation?

These are but a few of the questions to which earnest thought must be given on the part of citizens of responsibility and of physicians interested in the evolution of social and medical ideals and institutions.

THE PSYCHIATRIC APPROACH OF THE PRACTITIONER TO HIS PATIENTS*

MORTIMER W. RAYNOR

Psychiatric problems are not new in the practice of medicine. It would seem though that mental illness is gradually becoming more prevalent and that now, more often than ever before, the practitioner has it to deal with. It may be true that there has been an increase in the incidence of psychiatric disorders as well as changes in their manifestations. This apparent increase, however, may be accounted for in various ways. Within comparatively re-

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cent times the physician has come to recognize and to understand psychiatric cases more easily. Coupled with this growing interest among members of the profession, there has been a corresponding growth in sympathetic concern on the part of the public. And, further, because mental illness has lost many of its unpleasant associations, people do not hesitate, as they used to, to consult a physician about their difficulties and to seek treatment for themselves or for relatives.

At the risk of being trite I shall refer briefly to attitudes toward mental illness which have been held in the past. In doing so, I do not wish to be considered over critical but I do desire to show the change which has come about and the contrast obtaining between the older and the more modern conceptions. These outmoded ideas must still be reckoned with and, if necessary, arbitrarily laid aside as interfering with the understanding and treatment of mental disorders.

Not so long ago both the profession and the community thought of psychiatric disorders in terms of "insanity" and of the physician who interested himself in mental disorders as an "alienist." Both the professional and community responsibilities were satisfied when the patient was duly examined and committed as an "insane person" to an "asylum." The "family skeleton" was then "safely locked in the closet." This was a perfectly good legal point of view and it was undoubtedly an improvement over the still remoter past. If the patient recovered he returned home with a cloud over him. His family and his friends lacked confidence in him and the neighbors felt sorry for him and said there must be "a bad streak in the family somewhere." Perhaps the patient's symptoms were not so marked—note the matter of degree—that he needed "to be put away." Then both the profession and the community thought in terms of "nervousness" and physicians undertook the treatment of the patient. Generally his case was diagnosed as one of the many current variations of "nervousness." He was "run down" and was given a tonic, or he was

troubled with insomnia and was given a sedative. He was then patted on the back and told that there was nothing the matter with him and was sent away on a trip or to the country for a few weeks. Sometimes a somatic disorder was diagnosed and treatment was given accordingly, or else he was looked upon as a hypochondriac. In the latter cases as time went on, the patient became a chronic invalid, drifted away from the doctor and became the support of some quack or cult, or worked out some religious, dietary, or physical culture nature cure and got along as best he could.

If one goes back to the latter part of the eighteenth century he will find the first evidence of real medical interest in the study of these problems. Slowly a body of psychiatric knowledge has accumulated which again and again has changed viewpoints and enlarged horizons. Many hypotheses concerning the causes of mental illness, its development and treatment, have been advanced. As a result there has appeared to be considerable confusion in psychiatric terminology. This has been no different from nor harder to understand than what has taken place in other branches of medicine. During the last several years of signal advances in medicine, it has been necessary to become acquainted with the language and terminology of the new discoveries in immunity and biochemistry, for example, as well as with those in psychiatry.

In this paper I do not propose to discuss the classification of psychiatric disorders. One can understand the factors at work in bringing about a patient's illness without such information. However, if any one is sufficiently interested, he may find the present system of classification, which at best is unsatisfactory, in any standard textbook on Psychiatry (¹). Neither shall I attempt to say anything of the treatment of the mentally ill, which is a subject in itself and may well be left to another time. I have prepared this paper not for the psychiatrist who is already familiar with psychiatric formulations and their applica-

tion, but for the physician who meets psychiatric problems in his daily medical practice.

I do not consider it profitable now to be concerned with the concepts of "insanity" and of "nervousness" and their differentiation, nor with the degree of deviation represented by such terms as "severe" and "mild," "normal" and "queer." It is important though that they be recognized, in the last analysis, as all coming out of the same pot.

The wide use of the expressions "personality" and "the reaction of the individual as a whole" makes it imperative that they be used advisedly in order to avoid loose thinking and snap judgment. The term "neurosis," with its qualifying adjectives of "gastric," "cardiac," "sexual," etc., should be looked upon as not stating the facts entirely and also with the suspicion that the "physical" and the "mental" and the "emotional" are being differentiated instead of the problem's being looked upon as a total reaction of the individual. The following case, in its opportunity for a wide range of diagnoses, illustrates this point. The patient, following an adequate cause, developed at different times syndromes of (a) spasticity of the extremities; (b) coarse tremors; (c) flatulence, heart burn, epigastric pain, and anxiety; (d) rapid pulse, pain in the region of the heart, rapid and difficult breathing, with extreme paleness and giddiness; and (e) periods of marked emotional depression when these other symptoms were not in evidence. These syndromes ushered in a prolonged depression without organic disease.

Thus it is important that the acquaintance of current viewpoints be made and also that they should not be accepted in the abstract but tested in the light of clinical studies of patients. It is not my intention to review these various schools of psychiatric thought and their development. There are probably few here who are not more or less acquainted with the current psychobiological and psychodynamic formulations of among others, Freud (²), Janet (³), and Adolf Meyer (⁴), and the very excellent critical reviews of their several hypotheses (⁵) (⁶).

In our present state of knowledge it is essential that the facts of the clinical histories and examinations be kept clearly in mind, that obviously unrelated data are not forced together in order to arrive at formal diagnoses, that enthusiasms are not mistaken for clinical data, and that emphasis is put on the understanding of the symptoms in relation to the development and experiences of the patient.

The study of the evolution and of the history of the complete development of the individual is essential to a thorough understanding of the patient from a psychiatric point of view. Constitutional traits, experiences, and resulting tendencies are often referred to as the personality make-up. It is clear that the personality make-up is not static but potential and dynamic. It is in a constant state of evolution, sensitive to both internal and external situations, and is being modified in one direction or another as a result of each individual experience. It should not be thought of as a ball which may be pushed hither and thither without direction. In the course of its development it does gather direction and a main tendency may be discerned within the usual life experiences. This is so even when superficially there appears to be marked and radical deviations.

It is perhaps well, even at the risk of attempting to over-simplify them, to call attention to a few steps in the evolution of man. With the union of the two cells tremendous forces are brought together which include traits not only of the family but of the whole history of the race as well. In referring to the germ cells, Harvey (1) says: "Their continuity links us with our ancestors, even the most remote. Our life is their life continued." The development of the embryo in the differentiation of tissue and the building up of whole structures, layer by layer and system by system, reflect the whole evolutionary history of man from the earliest forms of life. Of special importance to psychiatry is the evolution of the nervous system and the special glands of the body. An understanding of these forces and mechanisms during intra-uterine life

helps us to explain certain obscure and archaic reactions (°) (°) seen in the clinical manifestations of patients.

As soon as he is born the individual meets an entirely new environment and has to make new types of adjustment. Old drives, satisfactions, and habits have to be given up. The ever-increasing pressure of the environment makes a radical change in the demands upon the individual. The instincts of self-preservation, of the propagation of the race, and of seeking satisfaction as an individual and as a member of society, call for new adjustments of the highest and most important order. The constant striving from within and pressure from without forever call for the making of new adaptations. New habits and satisfactions instantly become inadequate and have to be given up in part or in whole, to be replaced by ones which in turn meet the same fate. This endless interplay of forces results in conflicts and compromises. It must be apparent that the resulting compromises often only partially satisfy the various strivings. The individual of course is aware of only a few of these activities, conflicts, and subsequent compromises. Most of the activities, because they are not salutary and acceptable to the conscious life, are repressed into the unconscious. The mechanism of repression is an automatic mental process not under the control of the conscious life of the patient and it applies both to the content of ideas and complexes and to their affects or emotions.

Mental activity is made up not only of ideas or concepts but also of their accompanying affects or feeling tones. The affect may become detached from its original concept and attached to an altogether different concept. When any part of the repressed material and its affect break through the repression into consciousness, their genesis is not recognized and they appear in a highly disguised form. This is especially seen in conversion hysteria and is illustrated by the case of a painter who developed a complete paralysis of his right forearm after an altercation with his wife, who accused him of not earning enough money to support her as she desired. Neither the man nor his wife

saw the connection between the altercation and the paralysis.

Wherever the process of development meets with differentiation and full satisfaction is not obtained and complete adjustments are not made, psychologically vulnerable spots remain which are referred to as points of fixation. At these points also arise the partial tendencies or satisfactions which often have to be dealt with later.

It is therefore most important in the study of psychiatric cases that a full history be obtained in each, and that the essential facts concerning the constitution and life history be studied and evaluated, as well as the data concerning the immediate situation.

In practice the immediate approach in the psychiatric study of the patient is made, as in all medicine, at the level of the complaint which brings the patient to the physician. A cross section is made of the personality make-up and the soma at this point, and attention is directed to the data at hand. When all of the immediate facts have been obtained, a complete history, or longitudinal survey, is obtained. Cross sections are also made at such levels as appear to give opportunities to study the process of the individual's development. The data is then evaluated and put together. If the study has been reasonably successful, a good understanding of the predisposing and precipitating causes will be evident, and adequate treatment may be undertaken.

In the consideration of constitutional factors the questions of direct hereditary transmission or hereditary tendencies to psychiatric disorders merit attention. Many studies have been made in this field and there is considerable discussion as to their importance. There is much that is highly suggestive and not so much that is positive, except that psychiatric disorders do recur in certain families. In estimating correctly the importance of any family traits or tendencies, one must bear in mind as well the inherent psychology of the family, and intra-family influences, as

I indicated some time ago in my paper on the "Problems in the Prevention of the Functional Psychoses" (¹⁰). Whatever the situation may be in regard to heredity, it must not be allowed to influence one unduly in his endeavor to treat the patient, any more than a family history of cancer or of tuberculosis influences physicians in their attempts to cure or to arrest these diseases.

Studies of the somatic constitution have been more helpful. Kretschmer (¹¹), Gibbs (¹²), Roper (¹³), and Draper (¹⁴), have attempted in a most suggestive way to correlate the somatic findings and the personality make-up. Unfortunately, studies of the ductless glands and the autonomic nervous system have not been, except in a few outstanding instances, so productive and helpful, and caution must be exercised in assigning any known causative importance to them. It is, however, hoped that more studies like those made by Cannon (¹⁵) may be undertaken. They will undoubtedly throw much light upon the physiological side of psychiatric problems. Kretschmer described body types which he correlated with types of temperaments. Gibbs studied the secondary sex characteristics in psychotic patients. In a study of body hair growth in women in whom he found the male distribution, he says in part, in discussing the biological interpretation: "The findings [in manic-depressive cases] and those previously reported in dementia praecox indicate the presence of an inter-sexuality or biologic bisexuality. . . . The degree of development and functional capacity of the feminine factors, both physiologically and psychologically, seems to vary considerably in these patients and apparently in an inverse ratio to the development of the masculine factor. . . . It seems quite possible that the presence of a certain degree of masculinity may account for the sexual drive which some of the patients present, with the resulting illicit relations. . . . As these patients grow older the ovarian or feminine function fails, with the masculine element gaining the ascendancy." He also pointed out that in certain female cases of dementia praecox presenting masculine distribution of hair, small uteri and breasts, childish body contours and faces were

found. These few references will indicate some of the directions in which helpful studies of the somatic constitution have been made.

The study of the past history of the patient and his personality make-up is time consuming and often that is one of the reasons which deter the practitioner from making a thorough study of the patient's disorder. Often this fact is also the cause of the physician's failure to help the patient. Foster (¹⁶) expressed this clearly in reporting a most instructive case. He said, "It took both time and trouble to find the cause of this sensation." However, if the doctor will take the time to study a few cases he will be rewarded by the results attained and the ability he will develop in reducing the necessary time spent on a case.

In psychiatric examination and history taking, it should be borne in mind that the inquiry must be broad and include both the psychological and the somatic sides. The important psychological and physiological periods should be given special attention since extraordinary stresses are met at these periods. It is often at these times that adjustment fails or becomes seriously impaired.

After the family history has been taken, inquiry should first be made as to the condition of the mother during the pregnancy and labor. This is followed by questions about the physical status of the infant during the first year of life; the nursing and weaning problems; the age of walking and talking; the child's reaction to training in the control of the bladder and rectum; the disposition, whether happy or fretful; the occurrence of tantrums, fears, night terrors; and the regularity of growth. These all have to do with the new adjustments the individual has to make in his development and contact with the environment. Difficulties in taking the breast or the bottle, or in giving them up, are common enough. Often they are points of fixation which are the foundations of later disorders, or they may be the first of a series of defective adaptations to life. Their immediate importance is whether or not they fit into the picture of the later psychiatric disorder.

Inquiry should also be directed to tracing the patient's intellectual growth and social development from early to later life. A study is made of the early evidence of sex manifestations, both physiological and psychological. Among the changes inquired into are: in boys, growth of the genitalia, change of voice, and shaving; in girls, development of the breasts and menstruation. In both sexes masturbation which may begin in infancy as well as in later life, should be investigated. The beginning of sex activity, changes in it, and any deviations should be ascertained. In women special attention should be given to pregnancies, children, and the menopause. On the psychological side, it is well to inquire of the mental attitude of the patient toward these events and changes and to ask about early interests and curiosities, adolescent interests, love affairs, and attachments to either or both of the sexes. Sex perversions are partial tendencies which have not been sublimated.

At this point in the study it is well to get a picture of the family, the family life and atmosphere. Their relations to each other and to the patient, and the patient's attitude toward the several members of the family, the likes and dislikes, somatic and psychological resemblances, and the attachments one for another are of great importance. In this connection the reciprocal relation between the patient and his parents, and their relation to each other, are often of great importance to the future mental health of the patient. As I have previously shown, many of the habits of thinking and reacting are acquired by example and training. Weak, insecure, irritable, fault-finding and self-centered parents are by imitation and training the source of similar traits in their children. Over-severe and domineering parents frequently cause quirks of the personality which handicap a patient throughout his life. The lack of instruction and of force of example in training children in the ordinary habits of personal hygiene, of eating, of handling instinctive urges, and in social values are psychological factors which have a great bearing on the development of the personality.

A history should be taken of injuries and physical illnesses, including exposure to toxic influences and the use of alcohol and drugs, including medication. The patient's attitude toward them should be ascertained also.

It is important to know something of the patient's output of energy as shown by his ability to apply himself to recreation and work, to learn his feelings about his inner self and toward other people, his attitude toward his environment and community life and responsibilities, the practicability of his ideas about the realities of life and his interest in abstract and mystical subjects and in superstitions, the range and quality of his emotional reactions, and his general feeling of adequacy or inadequacy toward his responsibilities and life. In taking the history it is well to make special inquiry into reactions toward outstanding situations in the patient's life, such as disappointments in career and love, deaths and marriages in the family, and any other outstanding events. The occurrence and nature of any previous attacks should be ascertained.

I think when the essential facts of the inquiry are summarized, it will be found that there are tendencies toward preferred reactions and that similar or related situations tend to bring out similar reactions.

The study of temperaments, which belongs to the ages, has been discussed by many. However the study of their relation to defects in adjustment is more recent. Hoch (¹⁷) pointed out the relationship between the personality and later maladjustments. He said: "Therefore, both the pathological personality, with its milder manifestations; and the psychosis, with its more complete break of compensation, may be looked upon as determined by constitutional factors, in the sense that when demands for adaptation arise the individual is found unfit to meet them, unfit through inherent weakness, but also at times, to quite an extent, through false attitudes which have developed through lack of proper training." He described the so-called "shut in" personality which sometimes leads

the patient into a malignant type of psychosis. Bleuler (¹⁸) formulated cyclothymic and schizoid reactions as types of personalities found in "normal people" and which often lead to pathological states.

The following cases will illustrate the foregoing.

A young woman of 31, the youngest of eleven children, had great difficulty in obtaining a much desired education, because of the poor financial status of her family. She had to work her way through college and this was done under a great deal of tension. She was sensitive, did not make friends easily, and did not talk of her difficulties. She felt inferior to her associates and was inclined to be suspicious. At home, under the influence of her dominating father, she was submissive; but after she left home, she became self-assertive and no longer took advice and direction well. Consequently she always worked alone in so far as possible. At the time of her graduation she cried three days without any explanation. She then became a technician of microphotography and in this position she was required to spend a great deal of time in the dark room. Her menses began at 12 and at these periods she was moody and more seclusive. She developed a fondness for one of her male associates and finally spoke of it to her roommate. Immediately she began to be suspicious of her roommate. She thought the other people in the laboratory knew of it, that remarks which had a special meaning were passed in her presence. She finally became very suspicious of everyone about her and developed bizarre ideas of influence and that she had been the subject of experimentation. In reaction to her delusions her conduct became increasingly peculiar.

A woman of 38, a writer, who had always been of an "up and down" temperament, developed after some years of writing, an acute exhilarated state when one of her books had been accepted for publication. Thereafter she had three episodes. Of the four, two were elated attacks following acceptance of her books by a publisher and two were depressions when publishers refused her books. These

attacks never lasted more than three weeks. They were exaggerations of her natural make-up and were recognized by her as reactions to these specific situations.

In the study of the present illness a good account of the patient's complaint and the setting in which it developed is most important as is the patient's opinion as to why it developed. Early in the disorder most of the precipitating factors will be found in the account as given by the patient, but as time goes on, one will find that these have faded out and more remote matters and rationalization have taken their place. The mental trends and the account of the psychological moment of onset often give a direct clew to the whole situation and mechanism of the disorder. Therefore the earlier one sees cases and the more complete the account of the onset obtained, the better the case is understood and the more sure one can be of helping the patient.

As many patients complain of somatic symptoms, it is most important to secure a good account of the circumstances which led up to them and the particular factors which finally precipitated the symptoms. These cases are often difficult to differentiate and understand, and give much concern to the physician. A careful inquiry should be made as to the presence of any acute somatic disorder, and if there is one, restraint must be exercised in ascribing undue importance to it in the presence of psychological symptoms. There is of course no question but that somatic illness may be the cause of psychiatric disorders, that it may materially influence the course of the psychiatric disorder, that it may itself be obscured by psychiatric symptoms, or that the two may be concomitant without materially influencing the course of either. Then, too, in acute psychiatric disorders there are physiological changes, among which may be vaso-motor disturbances, increased basal metabolism and sugar metabolism in elated states and retardation of the same in depressed and apathetic states. Henry (¹⁹) has reported that hypotonicity and

hypomotility of the intestinal tract are found in depressed states; in anxiety states, hypertonicity and hypomotility. In an unpublished study of menstruation, Henry found that in intense painful emotional states as in depressions, there is a cessation; and in painful emotional states associated with schizophrenic syndromes there is an irregularity in frequency and duration. A careful study of the case and a judicial weighing of all the factors, both somatic and psychological, brought out by a painstaking history, will ordinarily clear up any doubts.

Physical disorders sometimes impair the psychological defense mechanisms and act as a release to personality disorders which then dominate the clinical picture. These symptoms often disappear when the physical disorder has been corrected. This is illustrated in the following case: A woman of 38 had always been subject to mood swings; when up, she was active and showed erotic tendencies; when down, she was serious and inclined to keep by herself and was introspective. She had for a long time suffered from dysmenorrhea and later menorrhagia. When first seen she showed impulsive and silly conduct, heard voices speaking, expressed paranoid trends, and at times was mute and drew pictures of dolls. She showed a marked anemia and had lost twenty pounds. During the course of her treatment as her blood picture improved, all her mental symptoms disappeared. Although she was warned of the necessity of keeping in touch with her physician, approximately a year later it was learned that she had married and that there had been a return of her mental symptoms, preceded by menorrhagia. Later when she was seen, she presented the same mental symptoms and in addition she accused her husband of unfaithfulness. Physically she presented a picture of severe secondary anemia and a marked loss of weight. Again rest in bed and treatment of the anemia brought about improvement in her blood condition and her psychological condition. Since the second attack she has kept in touch with her physician who has watched her blood picture, with result that at least one other attack has been prevented.

Somatic conditions also often act as precipitating factors and the means through which the personality can express itself in terms of psychopathology. This is commonly seen in the psychiatric disorders accompanying childbirth, labor and parturition. This has been shown by Zilboorg (²⁰) who also pointed the way to prevention.

In addition to the above we have the typical organic mental reactions (²¹) (²²) which are directly dependent upon somatic disorders. They are generally found in toxic and exhaustive states or degenerative disorders such as senility, arteriosclerosis, and other diseases which cause changes in brain tissue. Delirium, confusion in the sense of defective orientation, hallucinations, paranoid trends, and Korsakow-like syndromes are psychological symptoms typical of these reactions. They may be obscured by other psychic symptoms as a result of a more extensive involvement of the personality reaction. Kirby and Davis in a paper on the "Psychiatric Aspects of Epidemic Encephalitis" give a good clinical picture of the organic reaction types (²³).

Time does not permit me to discuss the psychological symptoms which accompany neurological disorders. The same statements made concerning somatic disease apply with equal force to disorders of the nervous system. Some of these disorders have their special psychological syndromes.

In major hysteria we find some of the most typical instances of somatic symptoms due to psychological causes and arising in a psychological setting or even a somatic one. Cases of hyperthyroidism precipitated by emotional causes are not uncommon. Everyone is familiar with the vaso-motor phenomena occurring in fright and embarrassment, the gastro-intestinal symptoms of a student at examinations, and the similar symptoms often associated with worry. In addition to these perfectly obvious cases, others present obscure somatic symptoms which often have psychological determinants. In these cases it is found that the affect has become disassociated from a concept

and displaced to a somatic system or syndrome which has some degree of similarity to the original cause as if it were real. Cases of spurious pregnancy with the accompanying distension of the abdomen and enlargement of the breasts in women fearing or longing for pregnancy, and cases of morning vomiting in the same situation, are known to all.

The following case reported by Foster ⁽¹⁶⁾ is of interest. A married woman consulted her physician for a disorder of the heart. She had never had any trouble with her heart previously. She complained that after walking even so short a distance as half a block her heart jumped and caused distress. She had feelings of oppression and sensations of choking. As long as she stayed at home she did not feel discomfort. Once she had ventured on the street and had gone no further than half a block when, overcome by a state of terror, she rushed home. Inquiry finally developed the information that on a certain day she had seen her husband and a woman of whom he was fond, walking arm in arm. She had at once felt jealous and "terribly disturbed." She immediately returned home and stayed in the house for several days. When she attempted to go out she was overcome by distress in the region of her heart.

Among some of the common complaints for which patients seek assistance from their physicians are "nervousness," "run down" and tired feelings, inability to concentrate, anxiety, depression, insomnia, irritability, tenseness, headache, indigestion, and constipation. These may all be psychiatric symptoms and indications of difficulties of adjustment. In the course of life experiences, many strivings which cannot be satisfied and many compromises which are not acceptable have to be sublimated by turning them into useful channels or activities. The failure of sublimation often accounts for some of the less marked defects in adjustments. The young woman who for some reason is denied marriage and motherhood may successfully take up nursing. Later the sublimation may

not be sufficient for her needs and symptoms may appear without any immediately discoverable cause. This is the situation in many patients. It is just as important to look into the history of these patients for adequate causes as it is in the more severe cases. It is a recognized fact that the earlier the recognition of the underlying causes, the greater the probability of satisfactory readjustment. Particularly is this so in those emotional deviations, especially depression and anxiety, which are associated with thoughts of inadequacy and self reproach. Most of these patients meditate in one form or another on death. Such patients should without exception be looked upon as likely to make suicidal attempts. The great majority of them are hopeful cases.

Everyone, the world over, rationalizes his lack of knowledge and understanding, his mistakes and successes, his inadequacies and potentialities. And so, both the patient and the physician constantly tend to rationalize the patient's symptoms and state of health. This psychic mechanism is something against which every physician must be on his guard. He should not accept too readily the nearest explanation, the most plausible reason or the conventional one. Hard work and over study do not bring about a "nervous breakdown" unless there are conflicts connected with them in some way. Worry is always associated with insecurity because it denotes a lack of understanding or a feeling of inadequacy in meeting problems.

Mental health indicates an adequate level of integration of the whole biological unit, which in this case is a person. Anything, psychological or somatic, internal or external, which interferes with the integration impairs the adjustment the individual must make to life and to reality. The type and the degree of the impaired adjustment will depend upon the quality of the integration of the personality make-up in its largest sense, the psychological value of the precipitating cause whether it be psychic or organic, and the mechanisms present in the reaction. These can be known and understood only through a careful mental and physical examination.

The foregoing sketches in a general way the trend of thought in approaching psychiatric problems. Those who desire to become further acquainted with this subject will find in the following bibliography references which will stimulate their interest and broaden their understanding.

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REVIEW OF "POLIOMYELITIS"

A SURVEY MADE POSSIBLE BY A GRANT FROM THE INTERNATIONAL COMMITTEE FOR THE STUDY OF INFANTILE PARALYSIS.

On the initiative of Mr. Jeremiah Milbank of New York, founded on his desire to make a substantial contribution toward the solution of some medical problem connected with the diseases of children, and with the munificent donation from him of \$250,000 supplemented three years later with \$30,000 additional, there was organized in April 1928 the International Committee for the Study of Infantile Paralysis. The Committee consisted of fifteen distinguished scientists and physicians in the United States and England under the Chairmanship of Dr. William H. Park; it organized and directed the collaboration of over 40 research workers, who, in their different laboratories and institutions in separate centers, began work on such phases of the disease as they felt best qualified to study and to attempt to solve.

The result of this combined effort is the publication of the volume *Poliomyelitis* (The Williams & Wilkins Company, 1932), a book of 526 pages, plus charts, plates, tables, bibliography and index, a review and compendium of all knowledge of the disease almost up to the date of publication. About eighty articles and papers, which resulted from the researches of the various workers under the grant and which were published between 1928 and 1932, are included or referred to. The immense literature of the subject has been exhaustively combed and the more important papers reviewed. About 8000 references were examined and an orderly selection and arrangement of the material was made. These bibliographical studies, an immense task, have been ably directed by Dr. Helen Harrington, assisted by Dr. Mildred W. Wells and Miss Elizabeth F. Hutchin. Only those references which are cited in the text are included in the published bibliography, an exceedingly well planned piece of work of 43 pages.

There are seven chapters in the book—a Historical Summary by Elizabeth F. Hutchin; chapters on Etiology, Resistance and Immunity, and Pathology by Helen Harrington; Epidemiology by Mildred W. Wells, and Symptomatology and Treatment by Josephine B. Neal, Chief of the Meningitis Division of the Department of Health of the City of New York, and a physician of wide experience in the infectious diseases of the central nervous system. Only the briefest reference is made to the after care of the paralysis, on which several authoritative works have been written and are named in the text.

The format is good and the book is well printed. It is essentially a review of the literature of the subject, including the recent work done under the grant. Its value is as a book of reference, for the laboratory, the medical library and the student rather than as a hand-book. After great labor and the expenditure of large funds, little emerges to help the anxious and puzzled practitioner.

It is rather to be regretted that publication of the work might not have been delayed to include the completed

studies of the 1931 epidemic. No mention is made of the work of Wilson with the Drinker Respirator nor is an adequate evaluation given of this mechanical method of treatment of respiratory paralysis. The concisely written discussion of treatment of the early stages of the disease by means of serum "shows nothing to indicate its therapeutic value, either in reducing case fatality or in preventing paralysis. Indeed, the slight differences between the treated and the untreated groups are against the use of serum." This conclusion has been amply confirmed by the experience in New York in 1931, with the use of serum, from which so much was hoped. Poliomyelitis remains an obscure and baffling disease, extremely variable in its occurrence, in the severity of its symptoms and in its deplorable sequelae.

WILLIAM ROPES MAY.

RECENT ACCESSIONS TO THE LIBRARY

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PROCEEDINGS OF ACADEMY MEETINGS

FEBRUARY

STATED MEETINGS

Thursday Evening, February 2, at 8:30 o'clock

I. EXECUTIVE SESSION

a. Reading of the Minutes

b. Election of Fellows

II. PAPERS OF THE EVENING

SYMPOSIUM: RECENT STUDIES ON THE EFFECTS OF TOBACCO IN MAN

a. The evaluation of skin reactions in allergic diseases, Arthur F. Coca

b. Recent immunological studies on the effect of tobacco, Marion B. Sulzberger

c. Tobacco sensitivity in vascular disease, Joseph Harkavy

Discussion, Harlow Brooks, Robert H. Halsey, Lewis A. Conner

THE HARVEY SOCIETY

In affiliation with

THE NEW YORK ACADEMY OF MEDICINE

Thursday Evening, February 16, at 8:30 o'clock

THE FIFTH HARVEY LECTURE

"The Oxidation of Hemoglobin and Other Respiratory Pigments"

JAMES B. CONANT

Professor of Chemistry, Harvard University, Boston

This lecture took the place of the second Stated Meeting of the Academy for February.

SECTION MEETINGS

SECTION OF SURGERY

Bürklen,

MINUTES OF THE MEETING
N. Y., American Academy of Surgery

I. READING OF THE MINUTES

II. PRESENTATION OF CASES

a. 1. Traumatic rupture of the duodenum

2. Case of apparent formation of gall stones within hepatic ducts themselves, Frank B. Berry

- b. 1. Malignant melanoma on the forearm
2. Basal cell carcinoma containing melanin on the neck, Jerome Selinger

III. PAPERS OF THE EVENING

- a. Surgical selective collapse of the apex in the treatment of pulmonary tuberculosis, Pol. N. Coryllos
- b. The investigation and selective operative treatment of tuberculous cavitation with special reference to pneumocavernolysis, Harold Neuhof

Discussion, Howard Lilienthal, George G. Ornstein, Harry Wessler, Herman Hennell (by invitation)

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, February 7, at 8:00 o'clock

The exhibition of patients shall be open to all physicians between the hours of 7:30 and 8:15. After 8:15, only members are permitted to remain in the demonstration rooms.

I. READING OF THE MINUTES

II. PRESENTATION OF PATIENTS

- a. From the Good Samaritan Dispensary
- b. From the Lenox Hill Hospital Dispensary
- c. Miscellaneous patients

SECTION OF PEDIATRICS

Thursday Evening, February 9, at 8:30 o'clock

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. The tempo of physiological development, Franz Boas, Ph.D. (by invitation)
- b. The roentgenographic study of developmental growth, T. Wingate Todd, Cleveland (by invitation)

Discussion, Charles R. Stockard, George Draper

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday Evening, February 14, at 8:30 o'clock

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. Effects of lesions of the inferior cerebellar peduncle at various levels in monkeys, Armando Ferraro (by invitation), S. E. Barerra (by invitation)
- b. The humoral transmission of chorda tympani stimulation, Harold G. Wolff (by invitation)
- c. Some experiments on the functional organization of the respiratory mechanism, F. H. Pike (by invitation)
- d. Some observations on spinal animals (with demonstration), J. G. Dusser de Barenne (by invitation)

Discussion, Clarence O. Cheney, Richard M. Brickner, J. G. Dusser de Barenne, F. H. Pike, Louis Hausman, Armando Ferraro, Henry W. Cattell, Harold G. Wolff, Israel S. Wechsler.

SECTION OF GENITO-URINARY SURGERY

Wednesday Evening, February 15, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. READING OF PAPERS
 - a. From Guthrie's time to ours. A century of vesical neck surgery, T. J. Kirwin
 - b. History of urology in the New York Hospital, with description of the department of urology (James Buchanan Brady Foundation), Oswald S. Lowsley
 - c. The development of urology as a specific branch of medicine, William E. Lower, Cleveland (by invitation)

SECTION OF OTOLARYNGOLOGY

Wednesday Evening, February 15, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. EXECUTIVE SESSION
- III. PAPERS OF THE EVENING

ROUND TABLE CONFERENCE ON THE LARYNX

- a. Practical anatomical considerations, John M. Loré
 - b. The contact ulcer—etiology and treatment, C. L. Jackson, Philadelphia (by invitation)
 - c. Differential diagnosis in diseases of the larynx, John D. Kernan
- Questions answered in 3 minute allotments by the individual speakers.

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, February 17, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 - From the Orthopedic Service of Bellevue Hospital*
 - a. Extensive haemangioma of knee joint
 - b. Tuberculosis of the astragalus; astragalectomy, Arthur Krida
 - c. Congenital pseudarthrosis of the leg, Paul C. Colonna
 - d. Congenital torticollis complicated by brachial palsy, Philip Palew (by invitation)
 - e. Extreme traumatic equinus (motion picture), John C. McCauley, Jr. (by invitation)
 - From the Hospital for Joint Diseases*
 - a. A case of prespondylolisthesis, Samuel Kleinberg
 - b. Tendon transplantations in the hand, Leo Mayer
 - c. Old fracture of the patella treated by the Ober methods, Harry Finkelstein
 - d. Arthroplasty of the hip—end result, Herman C. Frauenthal
 - e. Vasography—x-ray demonstration, Maurice Pomeranz, Isidor Tunick (by invitation)
 - f. Internal derangement of the fibro-cartilage of the temporomaxillary joint—operation—result, Isadore Zadek
 - g. Slipping of the upper femoral epiphysis—a new type of operation—end result, Joseph Buchman

SECTION OF OPHTHALMOLOGY

Monday Evening, February 20, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. SCIENTIFIC MEETING
 - a. A case of chancre of the eyelid (5 min.), Samuel P. Oast
 - b. The Keeler Ophthalmoscope (5 min.), Conrad Berens, C. K. McLaughlin (by invitation)
 - c. Two cases of retinal detachment successfully treated by electro-coagulation (10 min.), Arnold Knapp
 - d. A case of nephrosis with embolism of the cerebral, brachial, central retinal and ciliary arteries (10 min.), David Wexler
- III. PAPERS OF THE EVENING

The ocular findings in a series of intra-cranial fibro-blastomata (25 min.), T. B. Holloway, Philadelphia (by invitation)

Discussion, Byron Stookey

 - b. The eye in sculpture and painting (15 min.), Percy Fridenberg (by invitation)
- IV. DEMONSTRATION BEFORE THE MEETING
 - a. A case of anomaly of the optic disc, Alfred Applebaum (by invitation)
 - b. Case of pseudo-papilloedema, Robert K. Lambert, Herman I. Weis (by invitation), Arthur A. Gallo (by invitation)
 - c. Friedenwald Ophthalmoscope, Mr. Turner Veith, American Optical Co.
 - d. Glareless light unit of Ferree-Rand, LeGrand H. Hardy

SECTION OF MEDICINE

Tuesday Evening, February 21, at 8:30 o'clock

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 - a. Edema and its treatment, Dana W. Atchley
 - b. The treatment of the circulatory manifestations of hypertension and chronic nephritis without edema, Arthur M. Fishberg
- III. GENERAL DISCUSSION, George Baehr, Herman O. Mosenthal

SPECIAL MEETING

of the

SECTION OF HISTORICAL AND CULTURAL MEDICINE
at

THE NEW YORK ACADEMY OF MEDICINE
under the auspices of the

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, CHARAKA CLUB
and

THE NEW YORK ACADEMY OF MEDICINE

Friday Evening, February 24, at 8:30 p.m.

E. P. GOLDSCHMIDT, M.A. (Cantab.) of London
lectured on

"OLD MANUSCRIPTS AS BOOKS"

SECTION OF OBSTETRICS AND GYNECOLOGY
 Tuesday Evening, February 28, at 8:30 o'clock
 PROGRAM FROM THE SLOANE HOSPITAL FOR WOMEN

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. Obstetrical significance of sex variation in the pelvis, W. E. Caldwell, Howard C. Moloy (by invitation)
- b. Pneumonia of the newborn, E. S. Coler
- c. Adenomyoma of the uterus, W. V. Cavanaugh (by invitation)
 Discussion, Gerard L. Moench
- d. An unusual case of endometriosis in pregnancy, B. P. Watson,
 Discussion, William J. Robinson
- e. Sarcoma of the uterus, J. A. Corsecaden, Discussion, Gerard L. Moench
- f. Studies in primary amenorrhoea, R. Kurzrok, Discussion, Morris A. Goldberger
- g. Traumatic neuritis in the puerperium, A. J. B. Tillman (by invitation)

New York Meeting of the
 SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE
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THE NEW YORK ACADEMY OF MEDICINE
 Wednesday, February 15, 1933, at 8:15 o'clock

1. Non acid-fast rods and granules in vertical sections of mycobacterium tuberculosis colonies, M. C. Kahn and J. F. Nonidez
2. Precipitins against fractions of streptococci in hemolytic streptococcus disease, glomerular nephritis, rheumatoid arthritis, S. viridans endocarditis and peptic ulcer, D. Seegal, M. Headelberger, E. L. Jost and J. D. Lyttle
3. Neurotropism of vesicular stomatitis virus, H. R. Cox and P. K. Olitsky
4. A species limitation of an enhancing material derived from a mammalian tumor, A. E. Casey
5. Filtration and secretion of exogenous creatinine in man, N. Jolliffe and H. Chasis
6. Further studies on the exophthalmos in rabbits produced by methyl cyanide, D. Marine, S. H. Rosen and A. Cipra
7. Hypertrophy of the pituitary of the rat during oestrus, A. Andersen (Introduced by A. M. Pappenheimer)
8. Measurement of the circulation time with saccharin, A. M. Fishberg, W. M. Hitzig and F. H. King (Introduced by E. H. Fishberg)

NEW YORK ROENTGEN SOCIETY
 in affiliation with

THE NEW YORK ACADEMY OF MEDICINE
 Monday Evening, February 20, at 8:30 o'clock

Demonstration and discussion of interesting cases

"Clinical and x-ray diagnosis of tumors of the spinal cord and vertebrae,"

Charles A. Elsberg

NEW YORK PATHOLOGICAL SOCIETY

in affiliation with

THE NEW YORK ACADEMY OF MEDICINE

Thursday Evening, February 23, at 8:30 o'clock

- I. Demonstration of pathological specimens
- II. A case of rare ulcerative jejunum (syphilis?) S. H. Polayes, J. R. Pearson (by invitation)
- III. A study of a lymphocytic hemogram, Carl Reich
- IV. Intranuclear inclusions in brain tumors, Abner Wolf (by invitation)
- V. Case of liposarcoma, intracanalicular fibroma, pericanalicular fibroma, cystic changes of the breast, Max Lederer, Saul Livingston (by invitation)
- VI. "Lipoid" pneumonia, J. Rabinovitch (by invitation), C. Solomon (by invitation)

FELLOWS ELECTED FEBRUARY 2, 1933

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Irving Brice Goldman.....	121 East 60 Street
John Edwin Scarff.....	315 East 57 Street
Joseph Ziporkes.....	160 West 73 Street
Attilio Milici.....	55 West 11 Street
L. Vosburgh Lyons.....	110 East 54 Street
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Samuel Hirshfield.....	Los Angeles, Cal.
Frederick Summerill.....	Philadelphia

COST OF CURRENT MEDICAL GERMAN PERIODICALS

Fellows of the Academy probably know from personal experience that the present price of most German medical literature is very high indeed. Possibly they do not realize how disproportionately exorbitant is its cost compared with that of the other language groups. The publishing firm of Julius Springer is by far the worst offender in this direction. An excerpt from a letter from Mr. Donald Gilchrist, Librarian of the University of Rochester, addressed to a society of German publishers, November 16, 1932, puts the situation graphically:

"... Attached you will find a list of some Medical Library subscriptions to scientific journals, all of which are costing us more than fifty dollars per year per title. The total of these medical journal subscriptions is nearly \$2500, and represents 40% of what we pay for 362 subscriptions. Last year we paid \$6100 for 362 annual subscriptions, an average cost of \$16.85. For these 29 German subscriptions we paid \$2460, average cost, \$85.00. For the 333 other subscriptions, we paid \$3,640, average cost, \$10.90.

Now, I am not arguing that the cost per page is the important item. On that basis the German publications are not so bad; they might even show up unfavorably without affecting my complaint. My complaint is specifically this: When we subscribe to one of these German publications, we do not know what our bill will be. Volumes are issued when enough material is gathered, the number of volumes to be issued a year is indefinite, the price per volume varies; and having subscribed, we are totally at the mercy of the publishers. Our professors in the Medical School tell us that many of these publications are cluttered with insignificant case reports, fragmentary experimental work, and wholly unimportant papers. In other words, the editorship, in many cases, is very bad. We have to accept a subscription to the whole, or pay the penalty of missing the really significant articles which all of them contain in varying quantities.

As you know, this matter is now being given very serious consideration by a group of medical libraries in the United States. Complaints on exactly this point have been going to Germany for years, without being given any particular consideration. It is my own personal opinion that medicine in the United States is now sufficiently matured to stand pretty much on its own feet, and I, for one, am quite ready to join with other American libraries in reducing radically the number of our expensive subscriptions,

until the situation is remedied, until we can subscribe on an annual basis specified in dollars, for well-edited journals publishing only the more significant material. If your association will give some serious attention to this problem, and put these publications on a similar basis with the important journals in these fields in other countries, you may make a real contribution toward friendly, effective scientific relations between your country and ours.

The economic situation in institutions at the present time is such that many library subscription lists will have to be radically pruned, and you may be sure that the attached list will be given immediate and serious consideration, when library committees are faced with the necessity of dropping eight to fourteen average English, American, French, Italian, or Scandinavian journals in order to subscribe to one German journal, for example, *Zeitschrift für die gesamte Neurologie*, at \$157.00 per year."

In 1932, the Academy spent \$5,830 for 334 German subscriptions. The cost of its totals subscriptions was \$9,562. We therefore paid 60% of our magazine funds for 30% of our journals, which is obviously not a fair division.

Medical libraries and general libraries, in Germany as well as elsewhere, have been aware of this discrepancy for some years. Many protests have been voiced. The Medical Library Association and the American Library Association both have committees cooperating on the problem at present. They urge all individuals who are in any way concerned with these conditions to investigate the situation in their own fields and to register their personal protests with the offending publishers, or with the Akademische Verlagsgesellschaft M. B. H., Markgrafenstrasse 6, Leipzig 1, Germany.

JANEI DOE

GRADUATE FORTNIGHT EXHIBIT ILLUSTRATING THE HISTORY OF THE EVOLUTION OF THE KNOWLEDGE OF CANCER

At the Graduate Fortnight devoted to the subject of Tumors which was held at the Academy of Medicine in October, 1932, an exhibit of books, papers, and memorabilia illustrating the evolution of the knowledge of cancer was arranged by the Staff of the Library with the assistance of Dr. Cushman D. Haagensen. The exhibit, which included over a hundred items, filled eleven exhibition cases in the reading room of the Library.

Requests for a printed catalogue of the exhibition have induced Dr. Haagensen to prepare a catalogue together with notes relating to the items. This will appear in the May, 1933, number of The American Journal of Cancer. The attention of medical librarians is called to this event. The catalogue may be of value to them as indicating the books on cancer which are of historical importance.

HERMANN MICHAEL BIGGS MEMORIAL LECTURE

The eighth Biggs Memorial Lecture of The New York Academy of Medicine will be held at the Academy on Thursday evening, April 6, 1933, at 8:30 o'clock. The lecture will be delivered by Dr. Herman O. Mosenthal on the subject, "Diabetes Mellitus: Problems of Present Day Treatment."

The lecture will be followed by a discussion in which several distinguished authorities in different phases of the subject will take part.

DEATHS OF FELLOWS OF THE ACADEMY

MERRITT WRIGHT BARNUM, M.D., Ossining, N. Y., graduated in medicine from the University of Jena, Germany in 1891; elected a Fellow of the Academy January 1, 1906; died, February 25, 1933. At the time of his death Dr. Barnum was Neurologist at the Ossining Hospital and Clinical Assistant Neurologist at the New York Neurological Institute and Vanderbilt Clinic.

WILLIAM GOLDEN MORTIMER, M.D., 147 Ft. Washington Avenue, New York; graduated in medicine from New York University, in 1885; elected a Fellow of the Academy, May 7, 1891; died, March 3, 1933. Dr. Mortimer was a specialist in diseases of the eye, ear, nose and throat.

GEORGE DAVID STEWART, M.D., 115 East 61 Street, New York City; graduated in medicine from Bellevue Hospital Medical College, New York, in 1889; elected a Fellow of the Academy, January 3, 1895; died, March 9, 1933. Dr. Stewart was a former President of the American College of Surgeons, and of The New York Academy of Medicine. He was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Surgical Society, the County and State Medical Societies, the New York Surgical Society, and the Society of Alumni of Bellevue Hospital. He was Consulting Surgeon to Bellevue, St Joseph's, Yonkers, St Mary's, East Orange, Englewood, South Side and Babylon Hospitals, and was Director of Surgery to St Vincent's Hospital and Professor of Surgery at New York University and Bellevue Hospital Medical College.

ENWIN ELISHA SWIFT, M.D., graduated in medicine from New York University in 1880; elected a Fellow of the Academy, November 7, 1889, died March 2, 1933. Dr. Swift was a member of the County and State Medical Societies.

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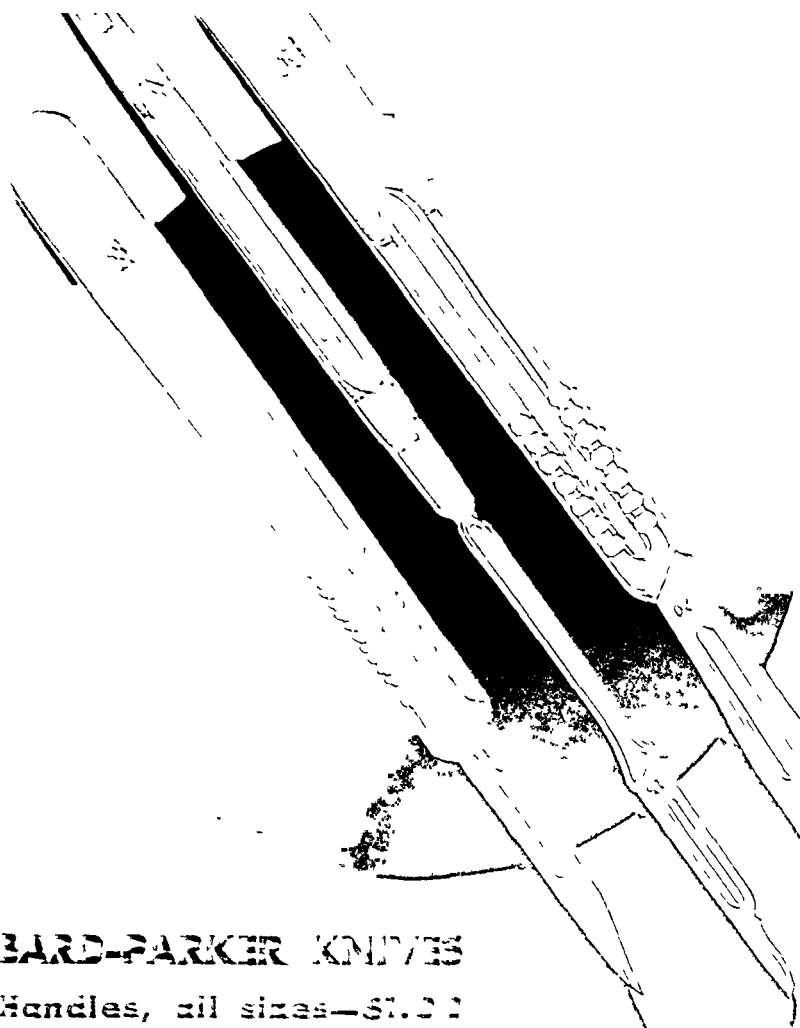
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INCORPORATED 1851

FEBRUARY, 1933



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New York, N. Y.

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CONTENTS

Editorial

- On Sydenham's View of Causation in the Light of
Seventeenth Century Thought, Fielding H. Garrison 53

ANNUAL MEETING, January 5, 1932

Address of the Retiring President

- Problems Facing the Academy, John A. Hartwell 69

Address of the Incoming President

- The Academy: Its Relations to the Art and Practice
of Medicine in New York, Bernard Sachs.... 80

- Funds for Research in Psychiatry..... 97

- Recent Accessions to the Library..... 97

Book Review

- The Outline of Preventive Medicine, William H. Park 102

- Proceedings of Academy Meetings..... 104

- Fellows Elected January 2, 1933..... 109

- Deaths of Fellows of the Academy..... 110
-
-

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BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

VOL. IX

FEBRUARY, 1933

No. 2

EDITORIAL

ON SYDENHAM'S VIEW OF CAUSATION IN THE LIGHT OF SEVENTEENTH CENTURY THOUGHT.¹

One of the older leaders of American medicine relates the following experience of his boyhood:

"But on this memorable afternoon, I stood on the hillside and looked over the Narragansett Bay, and wondered where all the catboats and schooners with their white sails came from, and were going to. Then my thoughts took this turn: 'The only person who can know that is God. He knows everything that has been, and is, and is to be. Then, hundreds and thousands of years ago, He knew that I should be here today, and that each of those boats would be just where it is, and that I should be thinking of them. Then, as His knowledge must have been perfect, it is absolutely necessary that I, just as I am, knowing just what I know, am here at this moment, looking at these ships, which also must be just where they are. Then everything must be arranged and ordered to be just as it is, and no one can prevent it. Therefore, I am not responsible for where I am nor for what I do.'"

The stern Calvinistic training, which made this determinism virtually automatic in a particularly active-minded boy of eight, was not without its influence on these Scotch and English Puritan thinkers who played such an important rôle in the intellectual output of 17th century Britain; and this apart from the predetermination implicit in the philosophy of Spinoza, the predestination of Calvin or the "pre-established harmony" of Leibnitz. Thoughtful men of the Puritan century felt themselves, in Emerson's phrase, "in the presence of high causes"; but

¹Read at a meeting of the Johns Hopkins Medical History Club on November 28, 1932

for the purposes of medical and scientific reasoning, causation has ever been a puzzle-headed affair. Consider, for instance, the Aristotelian tetrad of:

1. Material causes (the substance of the thing caused);
2. Formal causes (the basic idea in causation);
3. Efficient causes (the immediate or activating agent);
4. Final causes (the object of causation);

or the Galenic triad of:

1. Exciting (procatartetic) causes
2. Predisposing (pro-egumenic) causes
3. Immediate or proximate (synectic) causes,

common to the earlier text books of practice of medicine. Are not 2 and 4 in the Aristotelian scheme virtually identical, or at least related as plan and execution, where they do not entirely overlap? Do either the Aristotelian or Galenic schemes account for remote or primal causes? And what of immanent (self-contained or self-starting) causes (the *causa sui* of Spinoza) or transient causes (of collateral effect), or Newton's approximation of *verae causae*? Or the more scientific doctrine of multiple causation of Stuart Mill and Ernst Mach [$f(x) = f(a, b, c, d, \dots, n)$]? In verity, a tangle, which has had much to do with the many futilities of medical theorizing in the past and upon which a ray of strong light was shed by a certain bold pronouncement of Thomas Sydenham's.

"Sydenham, the prince of practical physicians, whose character is as beautiful and as genuinely English as his name, did for his art what Locke did for the philosophy of mind—he made it, in the main, observational, he made knowledge a means, not an end."² So writes Dr. John Brown of Edinboro concerning Sydenham's contribution to bedside medicine, the field in which the doctor must exploit knowledge not always to be found in books. Among English speaking physicians, Sydenham is memorable

²So, too, Descartes affirmed that knowledge has no value except to strengthen and perfect the mental processes, that erudition is as nothing in comparison with discriminating intelligence, while for Spinoza, "mind" is synonymous with mental activity or the act of thinking.

mainly as a delineator of hitherto unknown diseases. As Sigerist expresses it: "Where Hippocrates wrote case-histories (many of them without labels or diagnosis tags), Sydenham wrote histories of diseases," which he described, named and established in the scheme of nosology, like so many species of plants. By the bedside, however, Sydenham, like Charcot, regarded this classical or base-line typology of disease as a mere mnemonic scheme, in aid of diagnosis. He never swerved from the great Hippocratic tradition: treat the patient as a whole rather than the disease, which he saw not as a fixed entity or thing, but as a constantly changing process within the body, an effort on the part of Nature to get rid of the *materies morbi* or pathogenic virus. In a period, great in respect of laboratory work but in which bedside practice had sunk to an almost primitive level, the achievement was not inconsiderable. Now the point of departure or jumping-off place of Sydenham's line of attack is his denial of ultimate causes, by which is meant, in the jargon of philosophy, not a denial of ultimate causation, of Aristotle's proposition that God is the first cause of Nature but a denial that the human intellect is capable of apprehending the complex ætiologic scheme of Aristotle's fancy except in a very feeble and oftentimes ludicrous way.

Centuries before Sydenham and centuries after him, the advancement of clinical medicine was to be hindered by the wild fancies of successive physicians as to the causation of disease, each pawing the air about the matter in a manner all his own, and still doing it in some quarters. Sydenham's declaration of independence has the direct, forceful approach of the old Parliamentary trooper that he was. It is contained in the preface to the third edition of his *Medical Observations on the History and Cure of Acute Diseases* (1676), and runs as follows:

"It is a ruination of our prospects to have departed from our oldest and best guide, Hippocrates, and to have forsaken the original *methodus medendi*. This was built upon a knowledge of immediate and conjunct causes, things of which the evidence is certain. Our modern doctrine is a contrivance of the word-catchers: the art of talking rather than the art of healing. That I

may not seem to speak rashly, I must be allowed a brief digression; and to prove that these remote and ultimate causes, in the location and exploitation of which the vain speculations of inquisitive busy-bodies are solely engaged, are altogether incomprehensible and inscrutable; so that the only causes which can be known to us and the only ones from which we may draw our indications for treating diseases are those which are immediate, proximate and conjunct."

Fourteen years after the publication of this bold brief for common sense, Locke, Sydenham's intimate friend, ventilates the same line of thought in his famous Essay on the Human Understanding (1690). The misfortunes of mankind, he says, are due to our tendency to go beyond the limits of human reason in attempting to explain our difficulties in adapting ourselves to environment. On July 27, 1656, when Locke, a youth of four and twenty, had only just taken his baccalaureate degree at Oxford, one Baruch, or Benedict Spinoza was excommunicated from the Jewish congregation at Amsterdam for merely hinting the same line of thought, which Sydenham ventilated with such perfect freedom twenty years later. The anathema pronounced upon Spinoza is informed with the same fanatical intensity as the ban put upon the leper in ancient Babylon 3500 years before: "May the Lord set him apart for destruction. . . . Let no man speak to him, no man write to him, no man share the same roof with him, no man come nigh him." But where Servetus and Giordano Bruno had been burned at the stake, and Uriel Acosta driven to suicide for the crime of honest thought, Spinoza resumed, without affectation, the quiet habit of his life, supporting himself by the polishing of lenses, to become, in the end, the first of Nietzsche's "good Europeans." Spinoza's denial of final causes (that the scheme of nature is for the exclusive benefit of man) antedated Sydenham's view of the futility of prying into the remote causes (*causæ remotiores*) of disease by more than a decade and was expressed in full, in the manuscript of the Ethics, which was anonymously circulated during 1660-74, and published a year after Spinoza's death (1677)³. Six years before Syden-

³The problem of final causes was very much in the air in the 17th century.

ham's third edition of 1676, however, Spinoza had published a denial of final causes with reference to theological dogma in the first great brief for political and religious liberty, his *Tractatus theologico-politicus* (1670):

"God directs Nature according to the universal scheme of Nature, but not according to the particular dictates of human nature; and thus, God considers not merely human kind but Nature in its entirety."

In other words, the God of most men, as Thoreau observed, is simply Edward G. God or Thomas A. God, a magnified or expanded version of themselves, as if a triangle were to conceive of God as eminently triangular, or a circle to make the concept of godhead circular. To the feeble human intellect, the ultimate nature of God is inscrutable, nor does the infinite universe, in which man plays such an insignificant part, exist for the special benefit of man. Thus did Spinoza attempt to abolish a virtually polytheistic anthropomorphism, or man's tendency to promote his precious self expanded to the nth power into godhead, as well as that other manifestation of human conceit, the anthropocentric view of the universe, which was not to be obliterated until Darwin's time. We are now in position to appreciate the more scientific statement of the denial of final causes which Spinoza gives at the end of the first book of his *Ethics*:

"There is no need to show at length that Nature has any special purpose in view, and that final causes are mere figments of the human mind (*Omnes causas finales nihil humana esse figmenta*). That which is really a cause is conceived as an effect and *vice versa* . . . If a stone falls from a roof on someone's head and kills him, they will demonstrate by their new method that the stone fell to kill the man . . . So they pursue their inquiries from cause to cause, until, at last, they take refuge in the will of God, that sanctuary of ignorance . . . The eternal and infinite being which we call God or Nature acts by the same necessity as that whereby it exists. Therefore as God does not exist for the sake of an end, so neither does God act for the sake of an end. Of his existence and of his actions, there is neither

A denial of final causes was adumbrated by Bacon, Descartes and Gassendi, but the most conclusive and definite statement was that of Spinoza. Robert Boyle defended the teleological (Galenic) view in his "Disquisition about the Final Causes of Natural Things," London, 1688 (Item 186 of J. F. Fulton's Bibliography of the Honorable Robert Boyle, Oxford, 1932, 115).

beginning nor end. Wherefore, a cause which is called final is naught but a human whim."

In other words, Spinoza, with splendid stoicism, denies both the formal and the final causes of the old Aristotelian schema. A denial of final causes is, indeed, implicit in the first agonizing cry of prehistoric man overtaken by a fatal disaster, and has existed as a *schwebender Gedanke* from the beginnings of recorded time. The mother beside her dying child, the human being in the clutch of violent death or some other coil of fate, cries vainly "why?" but reason, as Lotze said, tells that it is only given us to inquire "how?"; or as Sir William Gall expressed it: "Savages explain: science investigates." With reference to either ultimate or final causes, man is still

"An infant crying in the night,
And with no language but a cry."

Galen's mistake, as Sudhoff points out, was that he was always cocksure in telling us "why", instead of humbly inquiring "how."⁴ Spinoza explains our ignorance, or rather our ineptitude about final causes by his doctrine of "inadequate ideas." In other words, our failure to assign efficient causes, to solve difficult problems or to handle difficult situations with ability, springs from the fact that our fundamental ideas about things themselves are hazy, confused, and in spite of ourselves, originate, not from clear cold cerebration, but from feelings or emotional states. Adequate ideas, by parity of reasoning, would originate in a mind complete and omniscient in itself, functioning impersonally, with no special viewpoint or pre-

⁴"Why" is a speculative, but not a scientific query. The relation of the psychological and metaphysical aspects of final causes to the apparently purposeful healing processes of the body (*vis medicatrix naturae*) and the physician as coadjutor (*medicus minister naturae*) has been exhaustively discussed by Dr. William H. Welch in his address on "Adaptation in Pathological Processes" (*Tr. Ass. Am. Phys. and Surg.*, New Haven, 1897, IV, 284-310). Dr. Welch has kindly called my attention to the error of confusing final causes (teleology) with remote or ultimate causation; but in the 17th century, the two concepts were confused, as witness the many sermons imputing epidemics to the wrath of God.

judice, like a sensitized photographic plate. It will be seen at once that no human being to date has had adequate ideas of things, except in a very relative sense. Hence, as all great philosophers have maintained, our notions of the fundamental nature of any phenomenon are necessarily fragmentary and incomplete. Behind the accessible *phenomenon* stands the inaccessible *noumenon*.

Let us consider a few instances of the effect of inadequate ideas functioning as final or even efficient causes upon medical reasoning in the past. First of all, the doctrine of supernatural causation of diseases, as punishments inflicted by angered gods or angered spirits of the dead, is common to all savages, primitive and semi-primitive peoples and with it necessarily goes the scheme of treatment by spells and incantations against these malign influences, set off by psychotherapy and crude folk medicine. Here we have the limiting case of both ultimate and final causation with a vengeance, and when the patient did recover, it was due to natural healing processes inside his own body, as Hippocrates and Sydenham maintained, but hardly to the shaman or medicine-man. Again, the humoral pathology of Hippocrates was the weak link in the chain of Sydenham's own reasoning about medicine—the one point in his armor which was vulnerable to the fallacy of final causes. The revival of this humoral view of the mechanism of disease by the serologists turned Virchow into a disagreeable bigot and reactionary, since it threatened to abolish his cellular or solidist pathology. A few years later, Besredka signalized a solidist immunity in the tissue cells, coexisting with the humoral immunity, allocated to the blood, and back of both, there may be something else. In like manner, Galen's unfailing facility in improvising explanations for almost any happening, his monotonous Bridgewater teleology, his tendency to take all knowledge for his province, was responsible for most of the false reasoning about medical problems during the 1700 years preceding the death of Bichat. As Professor Neuburger has shown, the entire fabric of experimental neurophysiology in the 17th and 18th centuries had to be

scrapped on account of faulty directives and glaring ignorance of the gross anatomy of the laboratory animals employed. In the 18th century, each of the outstanding physicians of the period had a pet theory and a secret remedy all his own, upon which he stood as upon a pedestal. In consequence, quacks of the same type, standing upon the pedestal of a secret remedy, literally swarmed in this period. The doctrine of laudable pus, or healing by second intention, hampered successful wound treatment and surgery from the time of Galen to the advent of Lister. The rest cure of Weir Mitchell had a tremendous vogue among the neurotics and neurasthenics of his generation, but like Muldoon's rough handling of broken-down sports, it is no longer fashionable. The 16th century controversy about derivative and revulsive blood-letting was mainly a teapot tempest, turning upon ignorance of the fact that the blood circulates in the body. Kämpf's theory of infarcation started the 18th century vogue of clysters, which, like the multifarious ovariectomies and hysterectomies of our student days, is now no more. The endless controversies about mechanistic and vitalistic aspects of physiologic processes have little or nothing to do with the art of getting sick people well.

The general run of mankind, as Cardinal Newman observed, are more easily influenced by types and prevailing fashions than by ideas, arguments and pure reason; but what of the intellectual supermen who imposed these types and fashions upon them, in the first instance? Even Spinoza, the most outstanding example of a grown-up mind in the history of philosophy, abounds in inadequate ideas, particularly in his initial definitions, postulates, and fundamental propositions, which, as his published correspondence reveals, were not always intelligible to his intimates and, indeed, illustrate the fact that 17th century prose was still too involved, too cryptic, to be a reliable medium for the clear expression of scientific thought. Better still, Spinoza frankly admits the inadequacy of his own ideas in certain directions:

"If I am asked to consider whether a man who wilfully dies of starvation or thirst because he cannot choose between food or drink, is to be regarded as an ass rather than as a man, I answer that I do not know. Neither do I know how to judge a man who hangs himself or how we should regard children, idiots, madmen, and so on."

In his *Ethics*, Spinoza attempted to get around his difficulties with inadequate ideas by employing geometric demonstration, which, he says, furnishes "another criterion of truth by considering solely the essence and properties of figures without reference to their final causes." In spite of Huxley's assertion that mathematics yields no more than we put into it, it is now pretty well known that mathematical equations can do work for the mind which the mind alone would be incapable of performing; first by extrapolation, such as computing the population of the United States in 1950 from our present figures; or even by simple inspection, as when Hertz discovered the electric waves of wireless telegraphy and radio by pondering Maxwell's six equations expressing the electromagnetic theory of light. "These equations," said Hertz, "are wiser than we are." By such methods, astronomers and mathematical physicists, from Galileo and Newton to Einstein, have been able to predicate all we know about the mechanisms of the solar system and the expanding universe and Willard Gibbs expressed the fundamental theorems of physical chemistry in mathematical language at least 10-20 years before their experimental verification in the laboratory by Dutch chemists. By these methods, Spinoza arrived at results, startling in his day, which have been confirmed by the findings of recent physiology. One of the best of that very dubious category, the American novel, is based upon the following sentences from his *Ethics*:

"Decisions of the mind arise in the mind by the same determinism as our ideas of existing things. Therefore those who believe that they speak or keep silence or perform any act by a decision of the mind do but dream with their eyes open."

In the language of recent physiology: All fundamental actions are instinctive and have nothing whatever to do with states of consciousness. The natural man, or "good animal" of military parlance, is a brain-stem animal,

"With all his instincts fresh,
Not buzzing helpless in reflection's mesh."

Even the psychic mechanisms in the neuropsychoses are, in Charcot's view, predetermined, and as the great mathematician Jacobi affirmed, "*Nur in der Bewegung des Gedankens ist der Mensch frei.*" In other words, our minds do move and we bask in the illusion that the movement is free and not predetermined. By similar reasoning, *more geometrico*, Spinoza arrives at his famous definition of love, which he states with mathematical solemnity and without any apparent ironic intention: "Love is a pleasurable inner excitement accompanied by the notion that the cause of it is external." In the 17th century, Spinoza's period, well-bred young ladies in England sang to the harp the following ditty of Henry Purcell from Dryden's *Indian Queen*:

"I attempt from Love's sickness to fly
Since I am myself my own fever and pain;
No more now, fond heart, with pride no more swell,
Thou can'st not raise forces enough to rebel,
For love has more power and less mercy than fate
To make us seek ruin and love those that hate."

In another place, the same poet laureate (Dryden) affirms:

"The cause of love can never be assigned:
'Tis in no face but in the lover's mind."

In brief, another *schwebender Gedanke* of the 17th century.

The analysis of human passion and emotions, which made Spinoza's *Ethics* so epoch-making, owed something, no doubt, to Descartes' treatise *Sur les passions de l'âme* (1650); but through it all runs a certain remorseless thread of scientific reasoning which is Spinoza's very own and which led Johannes Müller to incorporate a German version of the third book of the *Ethics* in his treatise on physiology, because "it is impossible to give any better account of the matter than Spinoza has expounded with unsurpassed ability." The propositions of the second and third books are nearly all of them psycho-physiological. The very *raison d'être* for our present development of anatomy, physiology and practice of medicine is implicit in Spi-

noza's statement that the thinking brain has no adequate knowledge of the parts of the human body nor of its workings, save through information conveyed by changes affecting the body ("The healthy know not of their health but only the sick"). As we have seen, Spinoza denies Descartes' proposition that the mind is autonomic, controlling its own movements, but he does affirm that the body has an autonomic power to do things independently of the act of thinking. In other words, we think we think, but the tracts controlled by the sympathetic-autonomic system operate on their own ("the body thinks"). If the body is sluggish or inert, the mind is dull and *vice versa*; and whatever hinders bodily activity hinders mental activity, or the other way around. Mental decisions or suspensions of judgment are illusory, and when apparently spontaneous, are predetermined by a perception or memory of having considered or done things before. So, too, Ewald Hering attributed the functioning of protoplasm itself to "facultative memory," an automatic power of doing what it had once learned to do in the primeval past. We cannot even utter a single word except through recollection of having done so before. We cannot remember or forget at will. The mind is free only in respect of what it remembers. Feeling is anterior to thought, which organizes itself through the development of speech and language. Actions, thoughts and dictates of the mind are really shaped by emotions, except where conflicting emotions nullify each other, like the conflicting waves of sound of Doppler's principle in acoustics. The mind is therefore enslaved or passive in so far as it is activated by confused or inadequate ideation springing from emotion. Passion is the utter domination of mind and body by a single emotion. We are only free in regard to moderate, insignificant desires or memory of things done. The mind in equilibrium (free from emotional stress) is easily swayed this way or that, but contrary emotions, says Spinoza, make people see the better part and follow the worse, whence our strong active dislike of nagging, bulldozing (*imponiren*), bully-ragging, activators, fanatics who "make a noise like a reformer"

and suchlike.⁵ The mind in Spinoza's view, actually experiences pain in the contemplation of its own weakness, since mind and will-power, as he sees it, are indistinguishable. Thus does Spinoza pyramid up to his great terminal chapters "Of Human Bondage" and "Of Human Freedom." Here "good" and "bad" are mere relative terms, while justice and injustice, sin and merit are extrinsic, "all-too-human" ideas, not related to the fundamental attributes of the mind; humility, repentance and reverence mere modes of mental enslavement, and consternation "a species of cowardice." He who does good out of timidity is not led by reason but a slave ("His heart sins though he fears"). Sin is inconceivable in a state of nature and is defined by Spinoza as disobedience to the State, punishable by the State. Joy is a passage from a lesser to a greater perfection, sorrow the reverse; hence evil is whatever hinders a human being from maintaining his individuality or developing it to a higher level. Thus, Spinoza's criteria of sin and evil are not those entertained by modern scientific men. Yet he maintains that what differentiates the matricide of Orestes from the matricide of Nero was the fundamental evil in Nero's nature. In and for itself, the goodness or badness of the deed is relative, as the fangs of the cobra are good for the cobra but bad for other animals, or as murder, rape, theft and adultery have been religious observances in certain times and places, but elsewhere punishable crimes. Freedom of the mind from the bondage of inadequate ideas is attained by the *beatitudo in intellectu*, in other words by reducing desire and emotion to a minimum—

"Give me the man who is not passion's slave,"

and where this beatitude is attained, philosophy becomes, in very deed, "divine philosophy," a mode of "seeing God."⁶

⁵"He, who, guided by emotion alone, tries to make others like what he likes, or to make the rest of the world live according to his particular notions, acts solely from impulse, and is therefore hateful." *Ethics* IV, 37, Note 1.

⁶In his memorial address on the quay of the Paviloengragt (The Hague) on February 21, 1877, Renan affirmed that "here God was seen closely for the first time."

But although Spinoza's ethical system, his notion of human freedom, is based upon morality kindled by the dominance of emotions of a higher order ("his footstep in the *vera vita*, his eye on the beatific vision"), it would be a mistake to regard it as a religious system. It is rather a *Weltanschauung*, and from this angle, the members of his congregation knew just what they were about when they excommunicated him and he himself was serenely aware of the fact. To Spinoza, the expanding universe, as we conceive it, is but one of an infinite number of manifestations of God, "a conception which," in the words of Froude, "makes us giddy in the effort to realize it." Slowly but surely, his reasoning permeated and pervaded modern thought, to become, for a long time, the religion of scientific men. It exerted a profound influence upon the writings of Lessing, Goethe, Coleridge,⁷ Wordsworth, Shelley (who began a translation of the *Ethics*), George Eliot (who completed one), Matthew Arnold (*The Sick King in Bokhara*), Froude and Emerson.

Thus Goethe:

"Nature goes her own way and all that to us seems an exception, is really according to order."

"Nature has no feeling; the sun gives his light to good and bad alike and moon and stars shine out for the best and worst of men."

"Nature is always right and most profoundly so where we least comprehend her."

"Nature is the living, visible garment of God."

"Nature works by such eternal necessary laws that God himself could alter nothing in them." ("Nature must obey necessity." *Julius Caesar*, IV, 3.)

Or Emerson's reading of *amor Dei intellectualis* in "The Bohemian Hymn" ("In nothingness I put my trust.")

"In many forms we try
To utter God's infinity,
But the boundless hath no form,

⁷Coleridge evolved for Christianity and Spinozism the equations $W-G=O$ and $G-W=O$; but his algebra was poor, since transposal of the negative quantities would give, in both cases, $W=G$ or the identification of God and the world. To Spinoza, however, the perceptible universe was created Nature (*natura naturata*), behind which stands creative power (*natura naturans*).

And the Universal Friend
 Doth as far transcend
 An angel as a worm.^s
 The great idea baffles wit,
 Language falters under it,
 It leaves the learned in the lurch;
 Nor art nor power nor toil can find
 The measure of the eternal mind
 Nor hymn nor prayer nor church."

The mind of Spinoza was a mind of mathematical type, which assimilated the geometric method of Descartes, and, like other mathematical minds, read order and system into the universe⁹; whereas the mind of biologic type, of the Darwin—Mendel—Nietzsche phase, sees, if not chaos, a chaotic scheme of spontaneous creation of species, which war upon one another, among which, in fact, the struggle for existence is at its fiercest between individuals of the same species. As compared with most, Spinoza himself was one of those

"Milder natures, and more free,
 Whom an unblamed serenity
 Hath freed from passions, and the state
 Of struggle these necessitate;
 Whom schooling of the stubborn mind
 Hath made, or birth hath found resign'd;"

which is only another way of saying that his nature fulfilled Renan's criterion of the spiritual aristocrat, "to be born essentially impersonal." His freedom from the thralldom of emotional bondage was implicit in his Vergilian calm; his attitude toward the errors of mankind was "*tout comprendre c'est tout pardonner*" (*non ridere non lugere, neque destestari, sed intelligere*). Yet, on occasion toward the end of his life, Spinoza could envisage human society

^sIn his letter to Oldenburg (Epistle XV), Spinoza likens man's status in the infinite universe to a small worm in the blood, which knows vaguely the investing medium but nothing of the body or the external world beyond.

⁹Let this statement be checked by Julian Huxley's pungent commentary on the line from Young's *Night Thoughts*: "An undevout astronomer is mad." (*The Captive Shrew*, Oxford, 1932, 45-48.)

(man at peace) with the unsparing realism of a journalist of approved modern type:

"For this is certain, and we have proved its truth in our Ethics, that men are of necessity liable to passions, and so constituted as to pity those who are ill, and envy those who are well off; and to be prone to vengeance more than to mercy: and moreover, that every individual wishes to make the rest to live after his own ideas, and to approve what he approves, and reject what he rejects. And so it comes to pass, that, as all are equally eager to be first, they fall to strife, and do their utmost mutually to oppress one another; and he who comes out conqueror is more proud of the harm he has done to the other, than of the good he has done to himself. And although all are persuaded, that religion, on the contrary, teaches every man to love his neighbour as himself, that is to defend another's right just as much as his own, yet we showed that this persuasion has too little power over the passions. It avails, indeed, in the hour of death, when disease has subdued the very passions, and man lies inert; or in temples, where men hold no traffic, but least of all, where it is most needed, in the law-court or the palace. We showed too, that reason can, indeed, do much to restrain and moderate the passions, but we saw at the same time, that the road, which reason herself points out, is very steep; so that such as persuade themselves that the multitude of men, distracted by politics, can ever be induced to live according to the bare dictates of reason, must be dreaming of the poetic Golden Age, or of a stage play."¹⁰

"For men in time of peace lay aside fear and gradually from being fierce savages become civilized or humane, and from being humane become soft and sluggish, and seek to excel one another not in virtue, but in ostentation and luxury. And hence they begin to put off their native manner and to put on foreign ones, that is, to become slaves.

"To avoid these evils, many have tried to establish sumptuary laws; but in vain. For all laws which can be broken without any injury to another, are counted but a laughing-stock, and are so far from bridling the desires and lusts of men, that, on the contrary, they stimulate them. For 'we are ever eager for forbidden fruit and desire what is denied'."¹¹

While Spinoza's reasoning about final and ultimate causes is bound up with his enlarged conception of God, of an infinite universe expanded to infinite dimensions ($\infty \times \infty$) that of Sydenham about the causation of disease concerns the world of the infinitely little, which was opened up by microscopy and tends towards such concepts as ultrascopic viruses, syzygy, the contents of the Bohr atom, Abderhal-

¹⁰*Tractatus politicus*, 1, 5.

¹¹*Ibid.*, X, 4-5.

den's trillions of amino-acid reactions in a moment of intracellular metabolism or the Heisenberg "principle of indeterminism," in virtue of which at least half of the initial conditions of a physical phenomenon are non-existent beforehand and come into being spontaneously, at the determination of the event in question. Let us hope, indeed, that biophysics may ultimately throw light on such sparingly soluble problems as cancer, insanity or the respiratory affections. If so, the doctor will use the new knowledge as he does antitoxin, insulin or radiotherapy; but in general, his bedside reasoning, called intuitive but based upon multiplex memories, must and will continue along the plain, practical lines indicated by Sydenham. At the bedside, the physician must think, not biophysically, nor even biologically, but must remain a doctor of medicine, thinking medically, in keeping with the aphorism which Goethe wrote in his album: "Common sense is the genius of humanity" (*Le sens commun, c'est le génie de l'humanité*).

F. H. GARRISON



ADDRESS OF THE RETIRING PRESIDENT

PROBLEMS FACING THE ACADEMY*

JOHN A. HARTWELL

Four years ago, when you did me the honor of electing me to the Presidency of the Academy, I took the occasion to study the history of the Academy and read the various addresses that had been made by former Presidents. From these I received an accurate picture of the kind of spirit which dominates this institution. Recently I have reviewed these addresses and am impressed still with the fact that the original founders exhibited unusual foresight and were moved by a most idealistic view of the possibilities which the Academy holds for the profession and the community, in New York City.

On the occasion of my inaugural I expressed the hope that whatever ability I possessed might be stimulated, by the example of the Fellows of the Academy, to its utmost in carrying forward the traditions and aims of the Academy as expressed in these earlier documents.

It is now my great pleasure to inform you that this hope has been more than fully realized. It would have been impossible for me, at that time to visualize completely the working force that is such a factor in our Academy of Medicine. I have had the privilege of sitting with all of its Committees, at a major part of their deliberations during these four years and I can say with honesty that it is difficult to conceive a group of men more earnestly devoted to the interests of the profession and the people than these who are working on the various Committees of the Academy. And let me call your attention to the fact that their number is in the neighborhood of two hundred.

*Delivered at the Annual Meeting of the Academy, January 5, 1933.

In no instance has it been possible to observe any shirking by these men from burdens put upon them. When one realizes that the work they are doing offers them no compensation beyond the satisfaction of carrying forward the ideals and functions of this Institution with the hope, thereby, of rendering service to their fellow men, one is able to fully grasp the fact that idealism is not dead and that men are to be found who still go forward courageously in the pursuit of an *ideal*.

I should be remiss were I to fail to express the deep gratitude I feel for the work accomplished during these four years. I must not confine what I say in this respect to those who are Fellows of the Academy but must equally express my gratitude to the Staff which has made possible the splendid activities of the various committees, by their whole-hearted cooperation and their unfailing response to the demands placed upon them.

If there be any other institution in which the administrative staff, from the Director to the most humble employee has shown greater devotion to the interests of the institute they serve, than this Staff of the Academy, it has not been my good fortune to know of it.

As a result of this type of endeavor, we can point to very definite accomplishments. Possibly the most outstanding is that which has to do with the early completion of our building extension plans, undertaken at a time when the financial crisis was approaching. Nevertheless we were able to meet the conditions presented by Mr. Harkness, in his very generous gift toward this extension; to raise \$450,000.00 in addition to his gift for the building of a much needed addition; and to sufficiently endow it so that its proper operation may be assured. This was accomplished through the enthusiastic aid of practically our entire Fellowship, marshalled under the leadership of our Director; a most efficient Committee on Scope and Plan and a Committee on Building. Tonight you have voted into effect the amendments to the By-Laws which com-

pletely reorganize the internal workings of the Academy. In this there is a consummation of effort that has extended through approximately four years; the purpose of which is to aid in the solution, for this community, of the very serious question of the proper qualification of specialists in the medical profession; and your By-Laws will, within the next decade, make it possible for the community to know all those Fellows who, in the opinion of the Academy, have properly fitted themselves to be considered as specialists in the various special fields of medicine as well as in the broad fields of general practice.

The entire time at my disposal could be spent in enlarging upon the advantages of this one accomplishment but I can only call it to your attention and ask that you give it very serious consideration in order that it may reach its fullest fruition.

The Graduate Fortnight, which was undertaken with a good deal of misgiving, has developed into an educational institution of outstanding merit and is recognized as such not only in this community but throughout the Country. This has been made possible only because among the Fellows at the Academy there have been found men who have been willing to spend much time, great effort, deep thought and unusual executive ability, in instilling the spirit of educational adventure into these two weeks each fall.

The standardized nomenclature of disease will appear in its completed form within the week. This represents cooperative work of nearly all the major medical organizations and societies of the country. It received its initial force within our Committee on Public Health Relations.

You have recently read in the daily press that the Governor of the State, now the President-Elect, has called upon the Academy of Medicine to make effective the report of a special Committee who studied the question of employers' liability and compensation resulting therefrom. The Committee which made this study also came into exis-

tence because of representations made to the Governor by our Committee on Public Health Relations. Whether the Council will deem it wise to accept the responsibility thus placed upon it, or will move in other directions, is not yet decided. But the benefit that will accrue is no less certain.

An investigation of the conditions surrounding the procuring of donors for blood transfusions showed that much adjustment was necessary to place this upon a safe basis. Again your Committee on Public Health Relations moved, and as a result the Blood Transfusion Betterment Association has been in existence for three years and is furnishing properly qualified and safeguarded donors to the citizens of this community who are in need of a blood transfusion.

The activities of the Bureau of Medical Information, so ably administered under the auspices of the Joint Committee of the Academy and the County Society, has resulted in very much improving the value of everything published in the daily press and broadcast over the radio, in connection with matters of public and individual health. The service of this bureau alone is of inestimable value to the community, and, again the entire evening might be spent in discussing this work in detail.

It was one of our Fellows who brought to the attention of the Committee on Public Health Relations the very great medical iniquities that were inherent in the administration of compensation to our War Veterans. This Committee was able to arouse the entire profession of the Country to a realization of the wrongs connected with the actions of the Veterans' Bureau and, as a result the medical profession has been a dominant factor in calling the attention of the country to the expenditure of some \$450,000,000.00 annually in unjustified payment for compensation and medical care to those who wore the uniform of the United States service but who suffered no ill because of this service.

I have had time to no more than mention these various accomplishments but I can assure you that, without undue

pride or prejudice, I am speaking truthfully when I state that it is doubtful if any other institution has during recent years accomplished as much constructive work for the benefit of the people of this Country as has this Academy.

It may seem to you that, with such a record behind it, there is not much left for the future. I wish I might quote the exact words from Walt Whitman's poem "The Open Road" wherein he says that every success leads only to the necessity for greater endeavor. That is eminently applicable in our present situation. Few of the projects to which I referred have been completed. For most of them our continued effort is still demanded and it will be necessary that we do not allow our efforts or our imagination to lag if the full benefit of these is to be realized.

Other problems still face the Academy calling for solution.

What we have accomplished has been made possible by the splendid work our Committee on Admissions has done in selecting men who have shown by their power of initiative while still young that they will become the leaders in the future. The Academy of Medicine enjoys an unusual position of influence. Its Fellowship is composed of a limited number of carefully chosen men and women. It is because of the discernment and interest of the Committee on Admissions that its Fellows prove their outstanding importance to the community. Happily it is within our power continually to strengthen our position by being able to select the best members of our profession. The work of the Committee on Admissions during the past years strengthens our belief that only those who by education, tradition, ideals and ability are able to exert an influence for good, will receive the privileges of Fellowship in this Academy. It remains for us now to elect a Committee on Fellowship which will render a similar service in properly certifying the qualifications of those who, in subsequent years through adherence to the new By-Laws, may desire to be graded as experts in the various fields.

We must carefully guard against the assumption of functions and influences properly belonging to the County and State Medical Societies. Practically all of our Fellows are members of these organizations and are sympathetic with the efforts made by them to better conditions in medical practice, medical education and public health. Our strength lies in the careful delimitation of our activities to those fields wherein we may be of service by virtue of our compact organization: which activities cannot be so efficiently carried forward by the larger organizations. In everything we do we should carefully study the relation of the undertaking to the activities of organized medicine, as represented by the County and State, and work in heartiest cooperation with them.

Experience in the past has shown that there is no difficulty in laying down rules of procedure which involve no conflict of interests. As we have the privilege of speaking with the voice of authority, we must be particularly careful to see that our pronouncements are sound, wise, and above all, practical.

One of the problems which I wish to mention in a little more detail, has to do with the question of medical education. Our Committee dealing with this matter has proven itself more than unusually efficient and thoughtful. It is through its effort that the amended By-Laws, to which I have already referred, have been brought to a successful conclusion. In working out this conclusion the Committee has been strongly impressed with the fact that much more can be done in the orderly development of the educational facilities of this City. I fully concur with the opinion of the Committee that the time is now opportune for a comprehensive study of the education of the doctor—beginning with his undergraduate days and carrying him through the subsequent period of five or ten years. In the last analysis we are demanding of our physicians that they be competent practitioners of medicine. The question, therefore, resolves itself into an evaluation of present educational activities.

Two significant reports have recently appeared. The first has to do with the cost of medical care and the other is concerned with medical education as reported by the Commission on Medical Education. These statements deserve most discerning study, not so much because of definite recommendations submitted as because of the factual material they contain and the spirit in which the work has been accomplished. Of necessity they are different in scope. They may well be considered together, however, as the two problems are so closely interwoven. From a rather intensive scrutiny of the former, that is, the report of the Committee on the costs of medical care, I am almost persuaded that the costs will be more definitely reduced and the expenditure for medical care made more efficient if the precepts laid down in the report of the Commission on Medical Education be taken to heart and made effective.

Wastefulness is an inevitable cause of expense, for which there is no return. The cost of medical care is materially affected by failure of medical care to maintain and restore good health. It is therefore axiomatic that a very great saving in the cost of medical care can be made if medical education is brought to its highest possible efficiency.

The report on medical education convinces me that much still remains to be accomplished if our doctors are to be educated to the maximum of their ability to absorb education. In my opinion this is perhaps a more important matter than the reorganization and readjustment of the practice of medicine. At any rate, these two reports deserve attentive study with an effort to put into effect all that is good in both of them.

The reports are national in their scope. They embody the two subjects in the broadest possible light. It is obvious, however, that the solution for the betterment of medical education and more efficient medical practice is a local one and cannot, except in the broadest sense, be national in its

scope. For this reason it seems to me that the Academy of Medicine is in a position of great strategical advantage and that it is incumbent upon us to take the lead in these moves.

We are in the midst of a great educational center in the largest community in the country. With proper effort we should be able to select from these reports what is applicable to our own situation and by wise direction bring about noticeable improvements in both these fields. Again I wish to emphasize that in my belief this is a definite responsibility of the Academy and I feel that its officers and administration should move at once in this direction. That I am not alone in this, is evidenced by the fact that the matter already has received consideration and has been discussed by the Committee on Public Health Relations, the Committee on Education, and by the Council.

Particularly instructive is a recent discussion which took place at a meeting of the Committee on Medical Education. For more than two years, in conjunction with the study having to do with the qualifications of specialists, this Committee has been considering under the leadership of a sub-committee the educational aspects of our hospital internes and residents. This study has been made in association with representatives of thirty of our hospitals, organized into a board of advanced education. The problem presents so many difficult aspects and the time at our disposal is so limited that progress has been somewhat slow. Nevertheless there is a surprising unanimity of opinion that the educational value to the young men working in our hospitals as internes and residents would be greatly enhanced and made beneficial to a larger number if full advantage were taken of the existing opportunities for education. It is rather surprising that in this survey we have arrived at conclusions very closely paralleling those reported by the Commission on Medical Education in the chapter on "Internships."

The essential principle of these conclusions is that a proper educational spirit be developed in the hospitals,

rather than that definite rules of procedure be laid down. In other words it is necessary to have all our hospitals recognize their responsibility toward this phase of medical education and to find for their staffs men who will create interest in the subject. In this connection I should like to quote one sentence found in the foreword of the report of the Commission: "The Commission has believed from the beginning that an emphasis on educational principles in medical training and licensure can be secured only by modifying the point of view and broadening the interests of those responsible for medical education and licensure—not by recommendations and statistics, new regulations, further legislation or manipulation of the curriculum."

It is fully realized that a near revolution in medical education has taken place in recent years and, as in all revolutions it is probable that every good accomplished is endangered by something that is evil.

At a meeting of our Committee on Medical Education, held not long ago, this thought was rather forcefully expressed when a member of the Committee stated that at the present time our medical colleges had swung so far in one direction that they were no longer giving proper breadth of education to the undergraduate medical students. He stated that the incumbents of many of the important chairs were becoming so interested in the scientific aspect of some narrow field of their subject that the entire department was being permeated with the atmosphere of this, and that much which is essential to the education of a man, in order to become the practitioner of medicine, was totally lost.

I have expressed only the thought which he had. His actual words were much more forceful and possibly more significant. The sentiment expressed seemed to have the definite approval of the majority of those present. But I think it was with some surprise that the idea received rather a warm seconding by one of the high administrative officers of a medical college. This led to a propounding of

the proposition as to whether the Academy was not in a position to carry on discussions and conferences with the authorities of our medical colleges as well as with those in the hospitals with a view to correlating the work of the undergraduates and the work of the internes in a way that might more efficiently lead to the development of well trained practitioners of medicine. Many of the men with whom I have discussed this subject feel a real apprehension lest we are attempting to emphasize too greatly the scientific development of our medical students at the expense of practical efficiency.

After all, it must be remembered that the practice of medicine does not live through science alone and there is a real need for the proper evaluation and comprehension of the more refined processes of study and diagnosis in making them applicable to the individual ills of the patient.

Here is a curious state of affairs. It is known that upwards of 80 per cent of the sickness of individuals is of a nature which may be easily handled by any well trained doctor. Half of the remaining 20 per cent is of such a kind that the actual underlying condition may never be completely determined, even by the most exhaustive study with every scientific facility available. And the other 10 per cent is of such a nature that we have not any adequate therapeutic measures at our disposal to cure it.

To emphasize the need of the family doctor as the central figure in our professional organization to deal with the 90 per cent is only to employ phrases so hackneyed as to have lost their force. And yet no adequate plan has been brought forward to place the family doctor again in the position which he traditionally has occupied.

Most observers content themselves with pointing out social conditions, the difficulties existing, and leave the impression that no matter how desirable, the family doctor is a figure of the past. I cannot accept this unconstructive frame of mind. It is very obvious that there is a trend in our undergraduate and hospital teaching toward overem-

phasizing those diseases which are more difficult of diagnosis and treatment than the very much larger per cent which are simple in nature, but in their total amount cause a greater sum of suffering and incapacity. Surely we have sufficient intelligence to make a proper balance in this respect.

The program which the Committee on Medical Education is formulating calls for a serious study of these matters, using all the information available and particularly the mass of facts brought out in the reports to which reference has been made, in order that a start may be made in this community toward a broadening and bettering of the educational principles toward which we are striving.

Were there time I should be glad to inform you more fully of the detail of our plan but I must leave the subject with the simple statement that a great opportunity lies before the Academy and that this opportunity will not be neglected.

There are many other matters of major importance which I could discuss with you. I have only attempted to pick out a few as illustrating the problems which confront us and of which we are prepared to undertake the solution.

It remains only for me again to express to you my very sincere thanks and to confess to a feeling of sadness as I now relinquish the office of President of the Academy of Medicine. This sadness, however, is purely a personal one. I have full assurance that the Academy will be the gainer, inasmuch as my successor has for many years demonstrated the wisdom of his council, the breadth of his vision, a willingness to take up heavy burdens and his devotion in carrying forward, in every way, the best interest of the Academy.

Feeling thus, it is with real pleasure that I introduce to you your new President, Dr. Bernard Sachs, and surrender to him the leadership in the conduct of Academy affairs.

ADDRESS OF THE INCOMING PRESIDENT

THE ACADEMY: ITS RELATION TO THE ART AND PRACTICE OF MEDICINE IN NEW YORK*

BERNARD SACHS

Dr. Hartwell, Fellows and Friends of the Academy:

With the feeling of deep gratitude to the membership of this Academy, and in a spirit of sincere humility, I acknowledge the great honor you have conferred upon me in the election to the Presidency of the New York Academy of Medicine.

It is indeed a distinction of which any medical man may well be proud—to find himself in the company of Willard Parker, Fordyce Barker, Abraham Jacobi, Alfred Loomis, Edward G. Janeway; and of my immediate predecessors, George D. Stewart—orator, poet, forceful executive, Samuel A. Brown—keen, kindly, brilliant administrator, Samuel W. Lambert—learned physician, lover of books, able defender of the physician's rights in the Prohibition folly; and John A. Hartwell—of whom Dr. Williams said only last year in this hall, that “by intellectual power, impartial judgment, moral courage, he has shown himself to be not only a great leader, but a great citizen of this city.” I harbor the tiniest grudge against him because he has established a standard of excellence difficult to attain; and unlike some national Presidents, he has squared his performance with his promise.

There is some comfort for the present Academicians to know that Presidents may come and go, but the Director remains; and so long as Linsly R. Williams is charting the ship's course, it will keep off the rocks, even if it be sailing in troubled waters. I have watched the activities of the

*Delivered at the Annual Meeting of the Academy, January 5, 1933.

Academy during sixteen presidencies, have served on various committees, have seen its home change from its modest quarters at 12 West 31st Street to its present fine and still growing structure. I have had the honor of serving as one of the Trustees for the past seven years and have been inspired by the activities of the Academy from the very beginning of my medical career, realizing what it has meant in the advancement of the science and practice of medicine, the tower of strength it has been in the maintenance of the highest ethical principles and what an able defender it is of the rights of the profession; and how much it has contributed to the welfare of our City, our State, and our Nation.

If, during my incumbency of office, the good work of the Academy shall have been maintained and advanced by ever so little, I shall feel amply rewarded for any efforts I shall be called upon to make. To the Fellowship of the Academy, I appeal for that continued, unselfish, loyal support which they have given in the years past.

Let me confide to the public, that out of our membership of over twenty-one hundred, very nearly two hundred of the busiest medical practitioners of this city are devoting themselves unstintingly to the interests of the Academy, which means the interests of the profession and of the community.

What are some of our troubles? When this Academy was founded in 1847, in the first anniversary discourse, Dr. John W. Francis took occasion to say that the founding of the Academy was the inevitable result of the wants of the profession itself and of the community at large, and that one of its main purposes was to protect the community from the poisoned arrows of charlatanism. Fortunately, we need not, at the present day, consider this one of our chief aims. But, we are bound by tradition and by the needs of the day to do all in our power to advance the art, the science, and the practice of medicine, not only for our own good, but chiefly for the protection of the people.

New York, with its excellent municipal and private hospitals, with its two proud medical centers, with its Rockefeller Institute and many other research laboratories, may well be considered the very hub of medical science in America. While the Academy has actually abstained from inaugurating teaching courses, and while it is careful not to interfere with the functions of the various colleges, it provides the forum for the discussion of the many scientific medical problems pressing for solution, and in various ways, gives continuous instruction and enlightenment to the active practitioners of the metropolitan area.

Through the meetings of its eleven different sections, the specialties in Medicine and Surgery are well represented, and we are proud to have one section especially devoted to historical and cultural medicine, in which the attempt is made to preserve the link with the best traditions of former ages. The special groups meet for the more intimate discussion of the problems supposed to be of importance to these groups. I hope to stimulate the Fellows to even broader scientific activity, so that their work may become known to all.

At the Stated Meetings, held twice a month, questions of general interest are to be presented. By a wise arrangement with the Harvey Society, a certain number of these stated meetings have been given over to the advanced scientific purposes of that Society. I am of the opinion that these stated meetings could be made to serve a more useful purpose if we seek, thinking of medical *science*, to obviate the present decentralization of medicine.

The field of medical endeavor has assumed such tremendous proportions, that no one man can grasp the entire subject. Specialists in the practical arts and research workers are needed, and will be more and more welcome to the profession. It would be a distinct advantage to the medical fraternity if some special effort were made to acquaint the various specialists with the important problems engaging the attention of other medical and surgical groups.

If these specialists at some stated meeting, were to suggest for general discussion and information, their most pressing problems of the day, much could be done to bring about a desirable centralization of medicine, so that each one of us might realize what the others are thinking and worrying about. In this connection, let me make another plea—it is that we seek in every possible way to restore general medicine, or let us say, internal medicine, to the dignified role it once played. This implies that the general practitioner, the family physician, be restored to his full rights, and that we seek to develop once more the great general consulting physicians of former days, who will have a sufficient understanding of the entire domain of medicine, including the many biological sciences, and will be able to appreciate the special problems engaging the attention of the various specialties—always conceding that the detailed and practical work of the various specialties will require special skill and special training, such as no one man could hope to acquire.

There is need of the general medical diagnostician, the man with broad vision, with calm judgment, with the human touch—the family physician—with the full appreciation of the needs of the individual under the present strain of social and economic stress. The single physician may not be able to treat the whole body, but he *is* able to treat the body as a whole.

Family practice, for obvious reasons, is the most trying of all forms of medical service, and its compensations are entirely disproportionate to the value of the services rendered. At the present time the family practitioner is the only one among us who has a real inferiority complex; formerly he made the mistake of knowing it all; during the last two decades he has not maintained either his dignity or his rank; he has not made himself the central figure in the healing art; he has allowed himself to be pushed aside, until the public has begun to doubt his capacity and his usefulness.

The man or woman preparing for a medical career has all too often given thought to special work, without recognizing the truth that every physician should be a general medical man first, and then if need be, and if fitted for it, a specialist.

The Academy has taken a long step in advance by creating its new order of Fellows. According to the preference the member expresses, and his equipment, he may be received into one of the individual sections, say, of obstetrics and gynecology, of surgery, of pediatrics, and, once a fellow of a section, he is in the opinion of the authorities of the Academy, regarded as a man qualified to practice this specialty. Dr. Eggers as Chairman of a sub-committee is ready to submit a full report on the training of specialists.

The Fellows and Officers of the Academy, I am certain, will subscribe to the belief that medicine, and of course it includes surgery, must remain a cultured and learned profession. That there may be no doubt of our learning, we have inscribed over the portals and lintels of our windows, learned Latin sayings, selected by our erudite colleague and friend Charles L. Dana. For the benefit of those whose Latin has become somewhat rusty, adequate translations may be found in the Director's office. I wish we could find room for just one other inscription borrowed from Terence, as my learned brother assures me:

HOMO SUM; HUMANI NIL A ME ALIENUM PUTO.

You may question my antiquated pronunciation, but you will approve the sentiment: "Man am I; Nothing pertaining to man is foreign to me"—Let that indicate the breadth and scope of our professional and communal interests.

The colleges and medical schools will surely do their utmost to see that every man and woman intending to enter the profession, shall have had an adequate college training or its equivalent, shall have felt, as President Lowell puts it, "the stimulation of more vivid intellectual interests." I wish we could follow the example of the

Phipps Institute in Pittsburgh, and determine in advance whether the applicant for admission to the medical school is at all fitted for the profession. There are altogether too many men and women anxious to take up medicine as a life career. This is true not only of our City and Country, it is true, and is being deplored in other countries. It is authoritatively stated that there are 25,000 students of medicine at German universities at the present day. How many of these are bound to starve, it would not be difficult to guess. The Lowell report says that in the United States we have twenty-five thousand physicians more than we need. It adds cynically, "the number of thoroughly qualified physicians is and always will remain insufficient." In the decade preceding 1928, the population in New York State increased 9 per cent, the number of physicians has increased 23 per cent.

Those proposing to enter the field of medicine should feel the call of the calling, and should be imbued with a fervent desire not only to pursue an honorable career, but to be of real service to the community. In this era of economic stress, when success in commerce and industry demands real talent, proud parents will do well to realize that distinguished success in the business or industrial world depends as much on brain capacity and excellence of character as does success in any of the professions. On this point, law and medicine are in complete harmony.

In the medical ranks, we need recruits from our best stock and we want aspiring youths eager to win their laurels in practice and in research. Do not urge any young man to take up medicine because of prospective gain. He who seeks riches or even an assured living would do well to go elsewhere. We do, however, wish to attract men of ambition and of sterling character. Character is more important than all else. Adequate brain capacity is more easily found than absolute honesty of purpose.

So far as medical practice in this community is concerned, the Academy stands for the observance of the

strictest ethical principles. It will not sanction a division of fees or any other, slightest, infraction of the highest ethical principles of the medical profession. In every instance the patient must know what and whom he is paying. Through its Council and its Committee on Professional Standards, the Academy has the power and authority to call any of its members to account; so that the public may have the guarantee that the members and fellows of this organization are endorsed as men who practice the art of medicine in keeping with the best traditions of this and former ages. I promise that there shall be no departure from the strictest ethical standards.

Unethical medical practices have a most baneful influence on the development of the young practitioner. In former days, it was the ambition of the young physician to advance by dint of hard work, close attention to his patients, and by keeping himself thoroughly up to date with every advancement in the science and art of practice. It is painful to admit that at the present time advancement is not always secured in this way, but by alliance with a group of men who think less of the individual's merit and more of his financial prospects. The only way to rid ourselves of this danger is to destroy the den of iniquity by refusing to recognize it in any way. The members of this Academy, with the cooperation of the County Medical Society, exerting their influence over the entire medical profession in this City, will be able to control these evil practices.

We cannot shut our eyes to the fact that the medical profession is sharing in the economic difficulties of the day, and while we are determined that no dishonest practice shall obtain in the relations of the medical man to the community, it is only fair to consider that the average physician has a hard road to travel, that with the exception of a few fortunately situated individuals, the majority of physicians must seek a livelihood and are absolutely dependent upon fair compensation. The doctor's lot is not an

enviable one. Listen to the old quatrain recently revived in a Times editorial—

God and the Doctor we alike adore
But only when in danger, not before;
The danger o'er, both are alike requited
God is forgotten, and the Doctor slighted.

Physicians have always given every possible consideration to the adequate care of those who find themselves unable to pay for medical services. In our hospitals and dispensaries, they have done their work unselfishly, seeking their reward chiefly in the opportunities afforded them for increased experience and for the more rapid development of their professional reputation.

The medical fraternity, and surely the Academy, would be ready to assist in minimizing the costs of medical care. The recent report issued by the Wilbur Committee has focused attention upon it. The Lowell Committee has also called attention to the physician's professional training. The Majority Report of the Wilbur Committee calls for the development of medical units grouped about a hospital as the center, assuring the individual patient complete protection during illness by the payment of a very modest sum. Such payment is to be made either as health insurance or through some form of taxation. Evidently not only the poorest are to be protected in this way, but once this system is inaugurated, practically all classes will be permitted to join; and if any one, by paying a small amount per week or year, will be included, the system will be so revolutionary in effect, as to necessitate a reorganization of our hospitals and of the methods and practices existing at the present time among medical men. The Wilbur report, carefully prepared, deserves calm consideration, but I fear the physician himself will be the "forgotten man." Let us step carefully before adopting a system not unlike that in the process of development in some European countries, in which the average medical man is facing a starvation income. There are many different

points of view regarding State Medicine and the Socialization of Medicine. The future of our hospitals will also have to be considered carefully.

Aside from the question of income, the medical man must not lose incentive to the continuous improvement of his personal skill. After all, in this country of ours, glorified for the opportunities provided for individual success, the aspirant for fame in the medical ranks must be given his chance to succeed under American conditions. If any are blinded by what is reported from Russia, I have it on the personal authority of one of the most eminent physicians of the present day of Leningrad, and now a Soviet official, that there is no incentive to good work among Russian medical men. They have been standardized and leveled with a vengeance. Let us keep the fate of the medical man, as an individual, in mind if we are to inaugurate a new system; let us be certain that the patient at least will fare far better than he has under existing conditions.

As for the younger man trying to rise in the ranks, I fear he will not feel the stimulus to excellence of work that the man does, and should feel, who hopes that his practice will grow from patient to patient. I fear also the lack of that understanding between patient and physician which is so essential in the art of practice. Even at the present time, patients in our better hospitals receive a great amount of personal attention and sympathy; and yet those of us who have served both in hospitals and in private practice, feel that the contact with the individual patient in the outside world, the desire to meet with favor, to do his best by every individual case, to see his reputation spread from one group to another, the intimate contact with the individual in his social setting, are the important factors in the life of every medical man that tend to develop him as a successful practitioner of the healing art; and it is the constant contact with men and women in health and in illness in private practice that help greatly to build up the character of the physician himself. From the ranks

of the able and successful general practitioners must come the true teachers of the art of practice.

While the Wilbur Committee took five years to make its survey, the Lowell Committee made its final report after eight years; thus, you see that medical methods and conditions have been studied very closely these many years.

The Lowell Committee emphasizes the principle of making modern medical treatment and prevention of disease available to every one at reasonable cost. It believes in shortening and improving pre-medical education. It wants medicine to become more cooperative and less competitive.

We shall find no difficulty in agreeing with the Committee that specialization in branches of medicine has been greatly overdone, and we also agree with it that the unit of practice is the individual patient.

It puts forth the interesting figures that the 156,440 licensed physicians in the United States, represent a ratio of one physician for every 780 persons, which is twice as many as in the leading countries in Europe, and more than are needed for adequate medical service. They believe that one active physician to 1,000 or 1,200 persons is sufficient.

It is again of interest to know that of the 1,430,500 persons engaged in the medical profession in the United States, only about 10 per cent are physicians, the rest being nurses, hospital employees, midwives, pharmacists, etc. The calculations of this Committee are to the effect that the total expenditures for medical service in the United States are about two billion, five hundred million dollars a year, representing about \$100 a family a year.

It is also revealed that about seven hundred million dollars is spent for medicines, and 75 per cent of this is put down for self-medication largely through patent medicines and home remedies, supplied by the 60,000 drug stores of the country.

While figures may not be so important, it is of sufficient interest to know that in the average month there were 3,875 readers in the Library and Journal Room of the Academy. Of these, 2,081 were doctors from New York City; 202 doctors from outside; 451 were medical students; 213 were non-medical; 301 workers in other sciences than medicine; 14 were law workers; 146 were secretaries, probably helping to prepare doctors' papers; 467 were put down as "other readers."

Dr. Malloch, who was kind enough to furnish me with much interesting information, lays special stress upon the fine collection of rare medical manuscripts, incunabula, and great medical works of historical importance. Of somewhat lesser importance, are a large number of biographies of medical men, of novels and other works of a non-medical nature, written by doctors. You see there is not a thing a doctor will not attempt.

The ladies of this audience, if any are old-fashioned enough, will be glad to know that the Library contains the Margaret Barclay Wilson collection on food and cookery, written and published in more than a score of languages. Dr. Malloch says it contains the Apicius manuscript of the Ninth Century. Some day I am going to ask him to tell us about that manuscript. It may be of interest to know how those ancient people cooked their goose. Meanwhile, aspiring chefs may apply for reading privileges!

In our reading room we receive regularly 1,934 periodicals, exclusive of several hundred annual reports and public health documents and long runs of graduation theses.

The Library has a bibliographical department, which, on payment of a moderate fee, prepares bibliographies, makes translations, and helps with the preparation of papers. We have a great way of appearing learned; and we do guard public morals. Dr. Malloch is hyperconscientious. "If a reader asks for a book by an author, he is given it without question, except for quite a large number of works

on 'sex questions.' But if he does not know an author, and asks for a book on a certain subject, we try to give him 'what might be called a sensible one.'" Readers, male and female, interested in sex psychology, and kindred subjects, must not be in doubt as to the author's name, or else they will receive more modest information than many of them seek.

The "professor of books" has supplied me with other information. Writers of stories and plays come to get medical coloring and atmosphere for their works. Hair dressers and beauty specialists may come and get reliable information on diseases of the skin, ointments, perfumes, soaps, etc. Medical illustrators come to study illustrations of great medical artists, and the Library's collection of original drawings. Dr. Malloch very rightly deplores the fact that some doctors send their patients to read about their own illnesses.

The Library spreads its influence by lending books to any public library outside of New York City. In 1931, 820 books were sent thus to 80 different libraries. It is very evident that this Library of ours supplies a great need and is worthy of the most liberal support, whatever the cost may be. Incidentally, it is well to know that the great Public Library in New York has no medical division.

But we must pass from the Library to other activities.

Like the Congress, we do our work largely through committees. Take the Committee on Public Health Relations, guided during 18 years by the intelligence and skill of Dr. Charles L. Dana, and now under the admirable leadership of Dr. James A. Miller and its masterly Executive Secretary, Dr. E. H. L. Corwin, it has, during the past twenty-one years or more been of distinct help to almost every department of the City Administration, guarding hospital provisions in our prisons, the proper treatment of drug addicts, helping the Police Department in organizing its medical service. It has helped the Department of

Education in the proper examination of cripples and of children with heart disease; latterly it has been privileged to advise regarding the sick leave of teachers. The Committee has been in the closest touch with the Department of Health and the Department of Hospitals. In addition, this Committee has inaugurated plans which led to the formation of the Blood Transfusion Betterment Association. The Committee's advice has been sought and given in the matter of developing Saratoga Springs and other public projects. But, the work of the Committee has been especially fruitful of late. It has published a volume on Preventive Medicine; a sub-committee under the chairmanship of Dr. Frederic E. Sondern and with Dr. Hooker as executive secretary, is engaged in a most important survey of Maternal Mortality; another sub-committee is studying Diabetes. The Committee has held an exhibition on air pollution and street cleaning methods, and an exhibit of oxygen therapy. It is at present offering a course of lectures on Occupational Diseases. An important bit of work of this Committee has been its analysis of the Veterans' so-called relief legislation. Under the Chairmanship of Dr. George Baehr, startling facts have been revealed regarding the Veterans' legislation. The sub-committee report emphasized the fact that almost half of the sum of one billion dollars a year spent in 1931 upon ex-soldiers was being used for men whose illnesses developed in civil life and without any relation to their war service. It was frankly critical of work done by medical men who might have known better. The report indicated that the future demand for free hospital, medical and nursing care, and for cash allowances from the four million men who had worn a uniform at some time during the World War, would eventually impoverish the country and tend to destroy the efficiency of medical care for all the people of the United States.

It is more than likely that the recommendation made by this Committee had some influence in bringing about the Congressional Investigation, and of developing a coordin-

ating program for Veterans' relief for the future, which would be fair to the ex-soldiers and to the remaining 96 per cent of the population of the United States.

A special sub-committee, under the very able leadership of Dr. Adrian V. S. Lambert, has reported to the Cullman Committee and to Ex-Governor Roosevelt on the difficulties and abuses in administering the Workmen's Compensation law. Our papers have already spoken of a "Compensation Racket"; but the public may be certain, once such a racket is uncovered, the Academy Committee will spare no effort to show how the abuses are to be corrected, so that we may have satisfactory enforcement of a law that was to be just to the injured employee and the employer. It has taken us a long while in this country to realize that the expert medical examiner should always be selected or appointed by the Court and not by one of the parties to a suit. If the Governor so requests, the Academy will consider carefully the possibility of the establishment of a panel of physicians qualified and licensed to do compensation work. If such a panel is created it should be done with the cooperation and approval of the Medical Society of the State of New York. The Academy will not dodge that responsibility; nor will it favor purely commercial clinics, nor anything that suggests financial gain to the disadvantage of the injured person.

Through its Committee on Medical Education all matters referring to the training of medical students and medical practitioners are carefully considered. It might not be amiss if these men of long experience in active practice were to discuss with college authorities, the question of the full time professorship. I need not enter upon the details of the Graduate Fortnight, held in October of each year, which has become an established and valuable feature of the Academy's work, and through which the practitioner is supposed to obtain a quick review of the recent advances made in the medical sciences.

Through its Program Committee, and with the able help

of Dr. Reynolds, every effort is made to arrange the meetings in such a way as to keep the medical profession informed of the work being done in the various practical and purely scientific divisions of medicine and surgery.

Brief reference may be made to the excellent work done by a committee headed by Dr. I. Strauss in studying the operation of criminal law in its relation to insanity. Dr. Strauss' committee has also cooperated with Judge Collins in organizing a series of lectures for probation workers. The Judge looks forward with "happy expectancy" to achievement of importance in the cooperation of medicine and law for the welfare of society. I cannot close this enumeration of some of the Academy's activities without referring to the Information Bureau, which was established some years ago, and is now under the leadership of Dr. Galdston, the aims of which are, in association with the Medical Society of the County of New York, "to facilitate the dissemination of authentic information on medical and public health matters, to stem and curtail quackery and to promote a better understanding between the public and organized medicine." This Bureau has undertaken to supply the press of the country and the broadcasting agencies, with reliable information and competent speakers on the burning medical questions of the day.

All that I have said is supposed to be the answer to the question that has been so frequently put to me, "What does the Academy do?" Some of you may now ask, "What does it not do?" I hope I have given you a faint idea of the complexity and variety of the problems that come before us. We cannot wander, as the Academicians of old did, in olive groves, but thanks to the foresight and generosity of the Carnegie and Rockefeller Foundations, many of us, at all times of the day and night, enjoy the comforts and hospitality of this home of ours. It will be the aim of the officers of the Academy to make this home more attractive than ever to the Fellows and to the public, with the hope that the ties linking the Academy to the City and State

may become closer and closer and that the people of the City may feel that the physicians of New York are unselfishly yet jealously guarding the health, the welfare and even the morals of the entire community.

To the Fellows, I say: Join lustily in the good work ahead; to our friends here I say, Watch us at work; Give us your moral support; Cheer us by your presence; Come again!

FUNDS FOR RESEARCH IN PSYCHIATRY

The Thomas W. Salmon Memorial Committee of The New York Academy of Medicine has a sum of money which is available for small grants to physicians and others who are engaged in research work in the fields of psychiatry, mental hygiene and child guidance. Workers who are interested in receiving such grants may apply to The Thomas W. Salmon Memorial Committee, The New York Academy of Medicine, 2 East 103 Street, New York City,

RECENT ACCESSIONS TO THE LIBRARY

American College of Dentists. Commission on Journalism. The status of dental journalism in the United States. Report, 1928-1931.

N. Y., 1932, 238 p.

Atkinson, F. R. B. Acromegaly.

London, Bale, 1932, 260 p.

Babonneix, L. Thérapeutique infantile.

Paris, Masson, 1932, 508 p.

Bálint, R. and Weiss, S. Tissue proliferation and acid base equilibrium.

London, Constable, 1932, 211 p.

Bartlett, F. C. Remembering; a study in experimental and social psychology.

N. Y., Macmillan, 1932, 317 p.

Bartlett, F. H. Infants and children; their feeding and growth.

N. Y., Farrar, [1932], 409 p.

Baumont, G. E. Medicine; essentials for practitioners and students.

London, Churchill, 1932, 719 p.

Bertolotti, M. La critica medica nella storia Alessandro Magno.

Torino, Bocca, [1932], 413 p.

- Bland, P. B. Practical obstetrics for students and practitioners.
Phil., Davis, 1932, 730 p.
- Bourque, N. O. Diagnosis and treatment of head and spine injuries.
Chic., Lakeside Clinic and Post-Graduate Hospital, [1932], 207 p.
- Brock, J. Biologische Daten für den Kinderarzt.
Berlin, Springer, 1932, vol. 1.
- Burnet, É. La lèpre: légende, histoire, actualité.
[Paris], Flammarion, [1932], 185 p.
- Burrell, L. S. T. Artificial pneumothorax.
London, Heinemann, 1932, 174 p.
- Burridge, W. Excitability; a cardiac study.
London, Milford, 1932, 208 p.
- Catterina, A. L'operazione di Bassini per la cura radicale dell' ernia inguinale.
Bologna, Cappelli, 1932, 55 p.
- Charrier, A. and Loubat, E. Traitement chirurgical de la tuberculose pulmonaire.
Paris, Masson, 1932, 366 p.
- Committee on the Costs of Medical Care. Medical care for the American people; the final report of the Committee.
Chic., Univ. of Chicago Press, [1932], 213 p.
- Cope, J. Cancer: civilization: degeneration.
London, Lewis, 1932, 293 p.
- Costantini, G. and Redaelli, M. Atlante clinico-radiologico della tubercolosi polmonare.
Bologna, Stabilimenti Poligrafici Riuniti, 1932, 206 p.
- Davis, M. M., jr., and Rorem, C. R. The crisis in hospital finance, and other studies in hospital economics.
Chic., Univ. of Chicago Press, [1932], 241 p.
- Denker, A. and Albrecht, W. Lehrbuch der Krankheiten des Ohres und der Luftwege. 12. u. 13. Aufl.
Jena, Fischer, 1932, 650 p.
- Deutsch, H. Psycho-analysis of the neuroses.
London, Woolf, 1932, 236 p.
- Dobell, C. Antony van Leeuwenhoek and his "little animals."
London, Bale, 1932, 435 p.
- Douglas, A. C. The physical mechanism of the human mind.
Edinburgh, Livingstone, 1932, 251 p.
- Dunlap, K. Habits; their making and unmaking.
N. Y., Liveright, [1932], 326 p.
- Fasquelle, A. Ernest Chambon.
Paris, Baillière, 1932, 107 p.
- Florence, G. and Enselman, J. Les problèmes de la biochimie moderne.
Paris, Doin, 1932, 312 p.
- Fulton, J. F. jr. and Keller, A. D. The sign of Babinski; a study of the evolution of cortical dominance in primates.
Springfield, Ill., Thomas, 1932, 165 p.

- Fundinger, G. Stiefkinder des Schicksals, Helfer der Menschen.
München, Lehmann, 1932, 133 p.
- Furniss, A. Ultra-violet therapy.
London, Heinemann, 1931, 365 p.
- Gillet, P. La sympathicothérapie.
Paris, Doin, 1932, 222 p.
- Greenwood, M. Epidemiology, historical and experimental
Balt, Johns Hopkins Press, 1932, 80 p.
- Grenfell, (Sir) W. T. Forty years for Labrador
Boston, Houghton, [1932], 372 p.
- Guillain, G. Études neurologiques. 5. sér.
Paris, Masson, 1933, 462 p.
- Handbuch der allgemeinen Hamatologie, hrsg. von H. Hirschfeld und
A. Hittmair.
Berlin, Urban, 1932, vol. 1, pt. 1.
- Hewer, C. L. Recent advances in anaesthesia and analgesia.
Phil, Blakiston, 1932, 187 p.
- Hoder, F. Bakterienveränderung durch Bakteriophagenwirkung.
Jena, Fischer, 1932, 120 p.
- Hoffer, H. and Angles. La rééducation des déficients psychiques et des
retardés scolaires
Paris, Doin, 1932, 234 p.
- Hutchison, R. The elements of medical treatment. 2. ed
Bristol, Wright, 1932, 188 p.
- Iltis, H. Life of Mendel.
N. Y., Norton, [1932], 336 p.
- Jacobs, P. P. The control of tuberculosis in the United States.
N. Y., National Tuberculosis Association, 1932, 107 p.
- Jagic, N. Perkussion und Auskultation.
Berlin, Urban, 1932, 111 p.
- Jamieson, E. B. A companion to manuals of practical anatomy. 3 ed.
London, Milford, [1932], 654 p.
- Janet, P. M. F. La force et la faiblesse psychologiques
Paris, Maloine, 1932, 326 p.
- Lamarque, P. Précis de radio-diagnostic.
Paris, Doin, 1932, 746 p.
- Lehrbuch der Röntgendiagnostik von H. R. Schinz, W. Baensch und E.
Friedl. 3. Aufl
Leipzig, Thieme, 1932, 2 v.
- Levy-Valensi, J. Précis de diagnostic neurologique 2. ed.
Paris, Baillière, 1932, 646 p.
- Loeper, M.; Millian, G.; Bory, L. [et al.]. Thérapeutique médicale. 5. Peau,
syphilis et cancer.
Paris, Masson, 1932, 108 p.
- McCleary, G. F. National health insurance.
London, Lewis, 1932, 185 p.
- McConnell, J. W. Nursing in nervous diseases.
Phil, Davis, 1932, 153 p.

- McKay, R. H. and Beasley, N. Let's operate.
N. Y., Long, 1932, 361 p.
- Mayer, E. The curative value of light.
N. Y., Appleton, 1932, 175 p.
- Newman, (Sir) G. The rise of preventive medicine.
London, Milford, 1932, 270 p.
- Nobécourt, P. Clinique médicale des enfants. Maladies infectieuses; rhumatisme articulaire aigu, fièvre typhoïde, scarlatine.
Paris, Masson, 1932, 420 p.
- Nunberg, H. Allgemeine Neurosenlehre auf psychoanalytischer Grundlage.
Bern, Huber, 1932, 339 p.
- Piney, A. Diseases of the blood. 2. ed.
London, Churchill, 1932, 310 p.
- Piplani, S. L. Tuberculosis of the lungs.
London, Bale, 1932, 205 p.
- Robin, G. C. A. L'épilepsie chez l'enfant et le caractère épileptoïde.
Paris, Doin, 1932, 149 p.
- Rose research on lymphadenoma.
Bristol, Wright, 1932, 136 p.
- Schaffer, J. Lehrbuch der Histologie und Histogenese. 3. Aufl.
Leipzig, Engelmann, 1933, 576 p.
- Schick, B. and Rosenson, W. Child care today.
N. Y., Greenberg, [1932], 320 p.
- Seymer, L. R. A general history of nursing.
London, Faber, 1932, 307 p.
- Sprehn, C. E. W. Lehrbuch der Helminthologie.
Berlin, Borntraeger, 1932, 998 p.
- Stempell, K. L. W. Die unsichtbare Strahlung der Lebewesen.
Jena, Fischer, 1932, 108 p.
- Tétau, J. Les apothicaires de Nancy au XVIII^e siècle.
Paris, Éditions Occitania, 1932, 187 p.
- Thompson, C. J. S. The lure and romance of alchemy.
London, Harrap, [1932], 248 p.
- Timme, W. Lectures on endocrinology, 2. ed.
N. Y., Hoeber, 1932, 192 p.
- Tobey, J. A. Cancer; what everyone should know about it.
N. Y., Knopf, 1932, 313 p.
- Verworn, M. Physiologisches Praktikum für Mediziner. 7. Aufl.
Jena, Fischer, 1932, 304 p.
- Watkyn-Thomas, F. W. and Yates, A. L. The principles and practice of otology.
London, Lewis, 1932, 555 p.
- Watt, J. M. and Breyer-Brandwijk, M. G. The medicinal and poisonous plants of Southern Africa.
Edinburgh, Livingstone, 1932, 314 p.
- Williams, A. W. Streptococci in relation to man in health and disease.
Balt., Williams, 1932, 260 p.

Wong, K. C. and Wu Lien-Teh. History of Chinese medicine.
Tientsin, Tientsin Press, [1932], 706 p.

A SELECTED LIST OF NEW PERIODICALS ADDED IN 1932
(July to December)*

- Abhandlungen der Medizinischen Fakultät der Sun Yatsen-Universität.
Canton, China, Vol. 1, 1929.
- Anales de medicina interna.
Madrid, vol. 1, 1932.
- Annual review of biochemistry.
Stanford University, Cal., vol. 1, 1932.
- Archivio italiano delle malattie dell'apparato digerente.
Bologna, vol. 1, 1932.
- Art et médecine.
Paris, vol. 1, 1930/31.
- Bulletin of the Geo. F. Geisinger Memorial Hospital.
Danville, Pa., vol. 1, 1932.
- Bulletin of the Southern Pacific General Hospital.
San Francisco, vol. 1, 1932.
- Character and personality.
Durham, N. C., vol. 1, 1932.
- Diabetes.
N. Y., vol. 1, 1932.
- Hospital forum. (Hospital Association of New York State).
N. Y., vol. 1, 1931.
- Industrial medicine.
Chicago, vol. 1, 1932.
- Jahrbuch für das gesamte Krankenhauswesen.
Berlin, vol. 1, 1932.
- Journal of the Biological Photographic Association.
Menasha, Wis., vol. 1, 1932.
- Journal of Pediatrics. (American Academy of Pediatrics).
St. Louis, vol. 1, 1932.
- Proceedings of the California Academy of Medicine.
Stanford University, Cal., vol. 1, 1930.
- Quarterly bulletin of the Health Organization. (League of Nations).
Geneva, vol. 1, 1932.
- Radiologische rundschau.
Berlin, vol. 1, 1932.
- Southern surgeon.
Atlanta, vol. 1, 1932.
- University of Washington publications in biology.
Seattle, vol. 1, 1932.

*For the January to June list see: *Bulletin of The New York Academy of Medicine*, Ser. 2, v. 8, p. 477, 1932.

PROCEEDINGS OF ACADEMY MEETINGS

JANUARY

STATED MEETINGS

ANNUAL MEETING

Thursday Evening, January 5, at 8:30 o'clock

ORDER

- I. EXECUTIVE SESSION
 - Reading of the Minutes.
 - Election of Trustee
 - Election of Benefactors
 - Election of Fellows
 - Presentation of Diplomas
 - Vote on Proposed Revision of Constitution and by-laws.
- II. ADDRESS OF RETIRING PRESIDENT
 - Problems Facing the Academy, John A. Hartwell.
- III. ADDRESS OF INCOMING PRESIDENT:
 - The Academy: Its Relation to the Art and Practice of Medicine in New York, Bernard Sachs.
- IV. PRESENTATION OF ANNUAL REPORTS
 - The Council
 - The Trustees
 - The Treasurer
 - Committees (Read by title)

Thursday Evening, January 19, at 8:30 o'clock

THE FOURTH HARVEY LECTURE

"DYSPEPTICISM: TWENTY YEARS LATER"

HARVEY CUSHING

Boston

This lecture took the place of the second Stated Meeting of the Academy for January.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, January 3, at 8:00 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF PATIENTS
 - a. Patients from the Clinics of the Stuyvesant Square Hospital
 - b. Miscellaneous patients
- III. GENERAL DISCUSSION
- IV. EXECUTIVE SESSION

SECTION OF SURGERY

Friday Evening, January 6, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES

- a. Carcinoma of the breast complicated by toxic adenoma of thyroid
 - b. Intractable ulcer of leg treated with anti-virus, Paul C. Morton
- Discussion, John Douglas

III. PAPERS OF THE EVENING

- a. Relation of post-operative paralytic ileus to mortality in acute appendicitis, Philip C. Potter
 - b. The mortality of acute appendicitis as related to clinical types and treatment, John Jacob Westermann, Jr.
 - c. Acute appendicitis in Bellevue Hospital. A ten year comparison, Shepard Krech
- Discussion, Edward D. Truesdell, Morris K. Smith, A. O. Whipple,
J. A. McCreery

IV. GENERAL DISCUSSION

JOINT MEETING

SECTION OF NEUROLOGY AND PSYCHIATRY

AND

NEW YORK NEUROLOGICAL SOCIETY

Tuesday Evening, January 10, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 - a. Circulatory disorders in psychoneurotics in terms of the Schneider Index, James H. Huddleson, Jr., in collaboration with S. E. Soltz, Paul Haun

Discussion, Louis Casamajor

- b. A clinical concept of mental deficiency, Howard W. Potter

Discussion, A. N. Bronfenbrenner

- c. Mental hygiene—a developing concept, George K. Pratt

Discussion, Lawson G. Lowrey, George S. Stevenson

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Wednesday Evening, January 11, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 - a. Rise of the hospital idea, E. H. Lewinski-Corwin, Ph.D.
 - b. Historical development of medical education, Willard Cole Rappleye
- III. GENERAL DISCUSSION
- IV. EXECUTIVE SESSION

SECTION OF PEDIATRICS

Thursday Evening, January 12, at 8:00 o'clock

ORDER

- I. Single case presentations were given by the following hospitals: Babies' Hospital, Bellevue Hospital, Beth Isreal Hospital, Hospital for Joint Diseases, Lenox Hill Hospital, Mt. Sinai Hospital, Nursery & Childs Hospital, Post-Graduate Hospital, St. Luke's Hospital, St. Vincent's Hospital, Willard Parker Hospital.

SECTION OF OPHTHALMOLOGY

Monday Evening, January 16, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. SCIENTIFIC MEETING
 1. Congenital cataract removed at age of 74 years—with unusual history, D. B. Kirby
 2. A case of extensive dermoid of the orbit causing wrinkling of the retina, Arnold Knapp
 3. A case of tuberculous sclero-keratitis cured by transplantation of mucosa, R. Denig
 4. Unilateral loss of vision in a case of multiple sclerosis. Treatment with vasodilators, Walter F. Duggan
 5. The Ioskiascopy test—simplified, Joseph I. Pascal, Boston (by invitation)
 6. Retrobulbar neuritis and disease of the nasal accessory sinuses; a critical review of 15 years' experience at the Mayo clinic, W. L. Benedict, Rochester, Minn. (by invitation)
- Discussion, Stuart L. Craig from the Rhinologist's point of view,
F. M. Law from the Roentgenologist's point of view
- III. DEMONSTRATIONS BEFORE THE MEETING.
 1. Unusual cases for biomicroscopy demonstrated by M. L. Berliner, G. Bonaccolta (by invitation), B. Friedman (by invitation), I. Goldstein, W. L. Hughes.
 2. Practical demonstration of the method of Ioskiascopy, J. I. Pascal (by invitation)
 3. Two cases of pemphigus, E. A. Tusak (by invitation)
 4. A case with a retrobulbar tumor, M. A. Last (by invitation)
 5. a. A case of double retinal disinsertion of right eye and retinal hole in the left eye without detachments
b. Case of retinal tear 13 months after penetrating injury without detachment, M. Davidson

The demonstration of patients began at 7:15 o'clock.

The demonstration period of the February meeting was devoted mainly to cases of anomalies of the optic disc.

SECTION OF MEDICINE

Tuesday Evening, January 17, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
 1. Chronic adrenal insufficiency: a hitherto undescribed syndrome, report of a case with autopsy, Maurice Packard, Harry F. Wechsler (by invitation)
 2. Chemical changes in the blood in cats following adrenalectomy, Raymund Zwemer (by invitation)

3. Addison's Disease and its relation to experimental adrenal insufficiency, George A. Harrop, Johns Hopkins Hospital (by invitation)

III. GENERAL DISCUSSION

- Carl H. Greene (by invitation), Henry Jaffe (by invitation), Maximilian A. Goldzieher (by invitation)

SECTION OF GENITO-URINARY SURGERY

Wednesday Evening, January 18, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASE
Exstrophy of bladder, transplantation of ureters, Irwin E. Siris
- III. PRESENTATION OF PAPERS
 1. Vascular obstruction of the ureter in juveniles, Meredith F. Campbell
 2. Diagnostic errors in urology, H. L. Wehrbein (by invitation)
- IV. PAPER OF THE EVENING
Remarks on hematuria, Nathaniel P. Rathbun
- V. GENERAL DISCUSSION

SECTION OF OTOLARYNGOLOGY

Wednesday Evening, January 18, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPERS OF THE EVENING
Symposium on Acute Mastoid Disease
 1. Symptomatology and diagnosis, Richard T. Atkins
 2. Diagnostic aids
 - a. X-ray, Frederick M. Law
 - b. Laboratory, Andrew A. Eggston
 3. Differential diagnosis, Marvin F. Jones
 4. Discussion, Opened by John B. Rae (by invitation), continued by Clarence H. Smith, Isadore Friesner, Wesley C. Bowers, Samuel J. Kopetzky
 5. Summary, Arthur B. Duel

A clinical meeting was held at Post-Graduate Hospital at 2 p.m. on the above date. The program was sent members of the Section.

III. EXECUTIVE SESSION

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, January 20, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPER OF THE EVENING
Differential diagnostic signs in low back conditions, M. N. Smith-Peterson, Boston (by invitation)
Discussion, Benjamin P. Farrell, Arthur Krida, Armitage Whitman, Leo Mayer

108 BULLETIN of the NEW YORK ACADEMY of MEDICINE

SECTION OF OBSTETRICS AND GYNECOLOGY
Tuesday Evening, January 21, at 8:30 o'clock

ORDER

Program from the Department of Obstetrics and Gynecology of the University and Bellevue Hospital Medical College

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

1. Myopathic bleeding. Review of 141 cases treated by radiation, Sidney Rubenfeld (by invitation), Ross Maggio (by invitation)
Discussion, William P. Healy, Ira Kaplan
2. Treatment of recent puerperal inversion of the uterus. Report of 5 cases, David Nye Barrows
Discussion, B. P. Watson, H. C. Williamson
3. Surgery of the ovary, Sophie J. Kleegman
Discussion, Samuel H. Geist
4. Reconstruction of the oviducts. An improved technique with a review of cases, Francis W. Sovak
Discussion, I. Rubin

III. EXECUTIVE SESSION

NEW YORK ROENTGEN SOCIETY

The annual Roentgenological Conference of the Eastern Societies was held in Philadelphia in January and took the place of the regular January meeting of the New York Roentgen Society.

New York Meeting of the
SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Under the auspices of

THE NEW YORK ACADEMY OF MEDICINE

2 East 103 Street

Wednesday Evening, January 18, at 8:15 o'clock

- I. A Method of Enhancing the Vitamin A Value of Cod Liver Oil, E. R. Janes, H. F. Grover and E. J. Quinn
- II. Blood Cholesterol in Dogs on an A Deficient Diet, E. P. Ralli and A. Waterhouse
- III. Growth-Promoting Rachitogenic Diets for Rats, T. F. Zucker, L. Hall, L. Mason and M. Young
- IV. Role of Bacteria in Decomposition of Plant and Animal Residues in the Ocean, S. A. Waksman and C. L. Carey
- V. Influence of Hyperpyrexia on Velocity of Blood Flow, M. Kissin and W. Bierman (Introduced by E. H. Fishberg)
- VI. Differences in Response of Female Macacus Monkey to Extracts of Anterior Pituitary and of Human Pregnancy Urine, E. T. Engle
- VII. Metabolic Differences Between Two Transmission Lines of Mouse Leukemia, J. Victor and J. S. Potter (Introduced by J. W. Jobling)
- VIII. Effect of Products of Typhoid Bacilli upon the Tuberculin Reaction, J. Freund

NEW YORK PATHOLOGICAL SOCIETY
ANNIVERSARY MEETING

Thursday Evening, January 26, at 8:30 o'clock

- I. Demonstrations of pathological specimens
- II. Observations on the reticulocytes of pigeons, Elizabeth N. Davidson,
M. S. (by invitation)
- III. Congenital absence of vermiform appendix, Southgate J. Green
(by invitation), William J. Ross (by invitation)
- IV. Gaucher's disease with unusual terminal features, Louise H. Mecker,
Samuel J. Bochner (by invitation)
- V. Histo-pathology of the pancreas in chronic hypoglycemia, Reuben
MacBrayer (by invitation)
- VI. Therapeutic use of bacteriophage against colon bacilli, Ward J.
MacNeal, Frances C. Frisbee (by invitation), Martha Applebaum
(by invitation)
- VII. Streptococcus bacteriophage and streptococcus culture filtrates in
the treatment of endocarditis lenta, Ward J. MacNeal, Margaret
E. Straub (by invitation), Martha J. Spence (by invitation)
- VIII. The heart in a case of endocarditis lenta after treatment with bac-
teriophage, Reuben MacBrayer (by invitation), Samuel J.
Bochner (by invitation)
- IX. EXECUTIVE SESSION
Election of Officers

FELLOWS ELECTED JANUARY 5, 1933

Frank Berner.....	200 West 59 Street
Vincent Hurley.....	40 East 61 Street
Richard B. Kruna.....	290 Broadway
Irwin P. Sobel.....	1114 Madison Avenue
Walter Steiner.....	Hartford, Connecticut
Charles C. Francis.....	865 West End Avenue
Harry S. Altman.....	1695 Grand Avenue
David Ulmar	75 Central Park West
Joseph Buchman.....	1 West 85 Street
Nathaniel E. Selby.....	1070 Park Avenue
Armando Ferraro.....	140 East 81 Street
Richard C. Bodo.....	338 East 26 Street
Frank Co Tui.....	338 East 26 Street
James R. Lisa.....	City Hospital

ASSOCIATE FELLOWS ELECTED

Clyde S. Bouton, D.D.S.	2 East 54 Street
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DEATHS OF FELLOWS OF THE ACADEMY

VAN HORNE NORRIE, B.A., M.D., graduated in medicine from the College of Physicians and Surgeons, New York City in 1889; elected a fellow of the Academy, March 16, 1905; died, January 31, 1933. Dr. Norrie was a member of the American Medical Association, the County and State Medical Societies, and the New York Pathological Society. He was President of the Medical Board and Director of the Medical Service of the First Division of Bellevue Hospital. For some years he was a member of the faculty of the College of Physicians and Surgeons.

PARKER SYMS, M.D., Fitzwilliam, N.H., graduated in medicine from New York University in 1882; elected a Fellow of the Academy, February 2, 1888; died, January 27, 1933. Dr. Syms was a Fellow of the American College of Surgeons, a member of the County and State Medical Societies, the New York Surgical Society and a member of the Society of Alumni of Bellevue Hospital. He was author of many articles on surgery and an honorary member of the British Medical Society; consulting Surgeon to Lebanon, City, Nyack, West Side and All Souls' (Morristown, N. J.) Hospitals.

ROBERT HAWTHORNE WYLIE, M.D., 1115 Fifth Avenue, New York City; graduated in medicine from New York University, in 1885; elected a Fellow of the Academy, January 3, 1889; died, January 13, 1933. Dr. Wylie was a Fellow of the American Medical Association, a member of the County and State Medical Societies, a member of the Obstetrical Society, and a member of the Society of Alumni of Bellevue Hospital.



OFFICERS OF SECTIONS AND AFFILIATED SOCIETIES, 1932-33

Dermatology and Syphilology, 1st Tuesday

<i>Chairman</i>	<i>Secretary</i>
A. BENSON CANNON 371 Park Avenue	LOUIS CHARGIN 1 West 85 Street

	<i>Surgery, 1st Friday</i>
WILLIAM BARCLAY PARSONS, JR.	RALPH COLP
180 Ft. Washington Avenue	111 East 88 Street

<i>Neurology and Psychiatry, 2nd Tuesday</i>	
BYRON STOOKER 151 East 83 Street	CLARENCE P. OBERNDORF 112 West 59 Street

Historical and Cultural Medicine

2nd Wednesday of November, January, March and May	
C. N. B. CAMAC	HOWARD REID CRAIG
76 East 56 Street	175 East 79 Street

<i>Podiatrics, 2nd Thursday</i>	
JOHN CAFFEY	HARRY BAKWIN
Bard Hall, Haven Avenue	132 East 71 Street

MARK J. SCHOENBERG 1160 Park Avenue	<i>Ophthalmology, 3rd Monday</i> ALGERNON B. REESE 73 East 71 Street
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	<i>Medicine, 3rd Tuesday</i>
ROBERT F. LOEB	HENRY J. SPENCER
Presbyterian Hospital	24 West 10 Street

<i>Genito-Urinary Surgery, 3rd Wednesday</i>	
GEORGE F. HOCH 115 East 61 Street	C. TRAVERS STEPITA 2 East 54 Street

<i>Otolaryngology, 3rd Wednesday</i>	
CHARLES J. IMPERATORI	DAVID H. JONES
108 East 38 Street	140 East 54 Street

	<i>Orthopedic Surgery, 3rd Friday</i>
MATHER CLEVELAND	PAUL C. COLONNA
115 East 61 Street	59 East 54 Street

<i>Obstetrics and Gynecology, 4th Tuesday</i>	
FRANCIS W. SOVAK	FREDERICK C. FREED
117 East 72 Street	59 East 54 Street

The New York Roentgen Society, 3rd Monday

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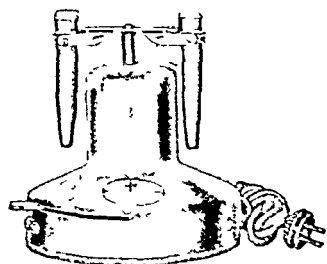
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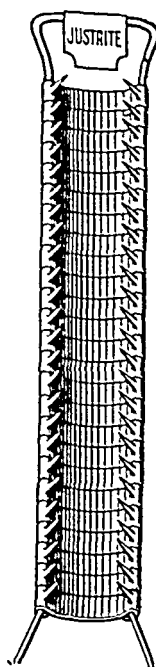
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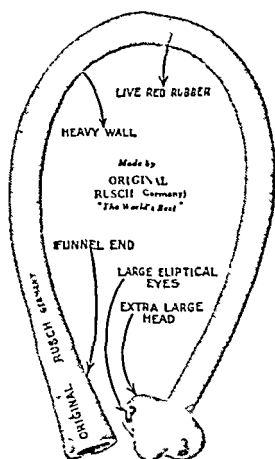
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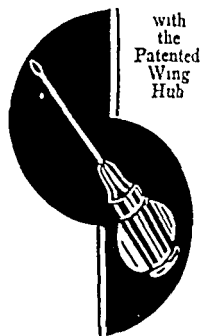
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CONTENTS

ANNUAL GRADUATE FORTNIGHT: "TUMORS,"

October 17 to 28, 1932:

Some Facts Concerning Tumors of the Brain,

~ Charles A. Elsberg..... 1

Gastro-Intestinal Manifestations of Allergy, Robert A. Cooke 15

Simple Achlorhydric Anemia, Nathan Rosenthal and

Harold A. Abel..... 24

Resolutions Adopted at a Meeting of the Council Held

December 28, 1932..... 41

Revision of Constitution and By-Laws..... 42

Recent Accessions to the Library..... 42

Proceedings of Academy Meetings..... 44

Fellows Elected December 1, 1932..... 51

Deaths of Fellows of the Academy..... 51

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VOL. IX

JANUARY, 1933

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ANNUAL GRADUATE FORTNIGHT TUMORS

October 17 to 28, 1932

SOME FACTS CONCERNING TUMORS OF THE BRAIN*

CHARLES A. ELSBERG

During the past decade, the knowledge of tumors of the brain has been greatly advanced, and it is well nigh impossible for a speaker to present a review of the progress that has been made in the time that is allowed me. I shall limit myself, therefore, to the presentation of some facts concerning tumors of the brain, and shall, in what follows, call to your attention some aspects of the diagnosis, the localization, and the treatment of these growths.

There is perhaps no better way to introduce the subject than by a few categorical statements concerning some symptoms of tumors of the brain whose importance is not as fully recognized as it deserves to be: Every individual who suffers from persistent headaches, in whom no other cause for the headache can be discovered, even though no other evidence of an intracranial disease can be found, should be considered a brain tumor suspect.

Those of us who see patients with intracranial growths, have become more and more impressed with the fact that almost every patient who has a tumor of the brain will show some abnormality of behavior or some alteration of character if he is carefully observed. Therefore in every individual who begins to suffer from mental disturbances

*Delivered October 17, 1932.

or in whom there has been a marked character change, an intracranial growth must be considered a possibility.

Furthermore in every individual who has had one or more convulsive seizures, even though he has had a preceding cranial trauma or an encephalitis, a cerebral new-growth must be excluded before the conclusion is reached that the symptoms are due to the injury of the skull or to an intracranial inflammatory or vascular lesion.

It is unnecessary, before this audience, to say anything regarding the fully developed symptoms of tumors of the brain, for no one would fail to suspect an intracranial growth in an individual who has increasingly severe headaches, choked discs, and evidences of paralyses of cranial nerves, loss of power in limbs, changes in the reflexes, evidences of increased intracranial pressure on x-ray films of the skull, etc.

It is important, however, to speak of the slight symptoms which patients with tumors of the brain may present—symptoms which are often considered of no serious significance by the patient and sometimes by the physician. Why is it—I have often asked myself—that so many patients already have marked loss of function when they are first seen by the neurologist and the surgeon? Why is it that, in so many instances, patients are first seen when there is a high degree of papilledema so that vision is greatly endangered? What is the reason for the fact that every neurological surgeon of experience has seen and operated upon numerous patients in whom vision had been lost before the operation could be performed, the growth completely removed, and the patient restored to health—but blind? And why, in so many patients, is an operation for a tumor of the brain performed only many months, if not years after symptoms first appeared? I would venture the statement that more than one-half of the patients who have been under my care for surgical treatment, gave a history which showed that disturbances had existed for long periods, and that the significance of these disturbances was only recognized when the disease was in an advanced stage.

Occasionally, the physician may have failed to recognize that slight disturbances were important. More often, I think, the patient and his family have been unaware of the fact that the slight symptoms were the warning signs of a serious disorder. It is therefore of no little importance that all individuals should be taught by greater diffusion of knowledge that slight disturbances of health are always of moment, and that with special reference to tumors of the brain, the medical profession should more fully appreciate the significance and the importance of slight and early disturbances. But I would go further than this. The facts concerning tumors of the brain add one more argument, if argument is necessary, to the importance of health examinations of all individuals at regular intervals. It has often been emphasized, that if at regular intervals, everyone was examined by a physician, not because the individual is ill, but because he is apparently well—many diseases would be discovered more early than they are at the present time. And as in other diseases, so also in tumors of the brain, successful treatment and restoration of the individual to health will very often depend upon the stage at which treatment is begun. Therein lies the importance of a full understanding of the early and the slight symptoms which tumors of the brain produce, and the reason for a presentation of some facts concerning those early and apparently insignificant disturbances produced by intracranial growths which eventually may be found to be very significant.

There was a time when the belief was general, that, in a patient with a tumor of the brain, there must be a history of disturbances of many months, perhaps of years of duration. I have already indicated that this is often due to the fact that the symptoms were not considered of serious importance by the patient himself or herself, and sometimes by the physician. We now appreciate that a brain tumor is often an acute disease, the symptoms dating back only a few weeks. In the most malignant variety of primary intracranial growth, the story often is that the patient was apparently in good health a few weeks before.

It is not, however, in these malignant and rapidly growing tumors alone that the history of the illness may be a short one. In slowly growing benign growths—if they happen to develop in those areas of the brain which we call silent (because as far as we now know, interference with the functions of these areas produces no subjective or objective symptoms)—the history given by the patient may be a very short one. During the past six months I have operated upon and removed large meningeal tumors in two patients, both of whom declared that they had been ill only a few weeks. The tumors were so large, that they must have existed and grown for many months and perhaps for several years. In both of these individuals the diagnosis and the localization of the growth was made without difficulty. If the patients had had a “health examination” months before, the diagnosis would have been made much earlier, and the danger and difficulties of the removal of the large tumors would have been much less. The social and economic importance of periodic health examinations can not be stressed too much or too often.

Before presenting to you some facts which are of significance in tumors of the brain, a few words must be spoken concerning the different varieties of growth that occur within the cranial cavity. Some tumors increase in size slowly so that the brain is able to accommodate itself to so great an extent, that the functions of the affected part of the brain are little interfered with. Others, whether they grow slowly or rapidly, happen to be situated in so-called silent areas of the brain, and for a long time, few or slight symptoms are produced. Still others, of a different histological nature, increase in size at a rapid rate, and the disturbances of function of the affected areas are marked in proportion to the acuteness of the involvement of the brain. In some varieties of tumor, the brain is only compressed by the growth; in others there is a marked reactive swelling of the brain which contributes a great deal to the production of symptoms; in still others, the growth interferes with the large blood vessels, and as a re-

sult there are symptoms also from the part of the brain which has been deprived of its blood supply.

Therefore, the first subject that must be considered, is that of the classification of the tumors and their relative frequency in different parts of the brain. For practical purposes, one may divide the growths into the following groups:

TABLE I

*The Grouping Of Tumors Of The Brain Based Upon
Their Site of Origin*

- I. Tumors derived from the sheaths of the nervous system
 1. From or attached to the meninges
 - Meningiomas (endotheliomas, meningeal fibroblastomas)
 - Meningeal sarcomas
 - Dermoids and epidermoids (cholesteatomas)
- II. Tumors derived from the sheaths of the cranial nerves
 1. Perineurial fibroblastomas
 - Tumors of the eighth cranial nerve
 - Tumors of cranial nerves in the course of von Recklinghausen's disease
- III. Tumors derived from blood vessels
 - Hemangioblastomas
 - Congenital blood vessel growths
 - Perhaps some meningiomas
 - Aneurisms of the large arteries
- IV. Tumors derived from glandular and other specialized structures
 - Pituitary
 - Pineal
- V. Tumors derived from the nervous tissue itself
 1. Neuroblastomas
 - Neuro-epitheliomas
 2. Gliomas

Slow growing

(astrocytomas
 (medulloblastomas
 (oligodendrogliomas
 (ependymomas

Rapidly growing (spongioblastoma multiforme)

VI. Secondary tumors

Invading cranial cavity from bones of the skull
 Metastatic

In the majority of instances, the tumors included in the first four of these groups increase in size slowly, and many of them are very favorable cases for surgical treatment. The growths produce slight disturbances for long periods, but, notwithstanding, the diagnosis is rarely made early enough and treatment, whether it be by surgery or by x-ray is usually begun later than it should be. Certainly, from the standpoint of surgery, the patients are operated upon mostly in an advanced stage of their disease, as proven by the fact that the tumors with which the surgeon has to contend, are regularly of large size.

The growths included in the fifth group of Table I—those derived from the brain tissue itself and which develop within the substance of the brain, constitute at the present time, the real problem of therapy. The hope, in the future, for better results in the treatment of these patients, is in part dependent upon the more early recognition of the disease by the physician through more careful examinations and by the discovery of new diagnostic methods.

During the past few years, there has been a tendency to classify the gliomas on a histogenetic basis, the most immature forms being those whose cells correspond to the most primitive cells in the developing nervous system, the spongioblasts, and the most mature being those whose cells consists mainly of adult glia cells—the astrocytes. The most undifferentiated cell type is the spongioblast—and the most embryonic type of glioma is the spongioblastoma multiforme, for the recognition of which Dr. Globus

deserves the full credit. A classification of the gliomas, on the basis of histogenesis, is a good working hypothesis, but the viewpoint now generally held that the more immature the type of the cell, the more malignant and rapidly growing the tumor, will probably be considerably modified in the future. This much is, however, certain. The spongioblastoma multiforme is the most rapidly growing and the most malignant type of glioma with which we are acquainted. The results of the surgical treatment of tumors of the brain would be much better than they are, if it were not for the fact that the gliomas form more than one-half and the multiform spongioblastomas more than one-tenth of all intracranial growths, as the following table of our verified operative material demonstrates:

TABLE II

*Relative Frequency Of 878 Operated And Verified
Intracranial Tumors*

Gliomas	500	=57 per cent.
Unclassified	128	
Verified by cyst fluid alone	114	
Astrocytoma	81	
Fibrillary	36	
Protoplasmic	14	
Mixed	31	
Oligodendroglioma	7	
Spongioblastoma polare	4	
Pinealoma	2	
Ependymoma	1	
Medulloblastoma	56	= 6 per cent.
Medullo-epithelioma	2	
Astroblastoma	3	
Tuberosclerosis	5	
Spongioblastoma multiforme...	97	=11 per cent.
Neuroblastomas	4	
Meningeal fibroblastomas (endotheliomas, meningiomas)	123	=14 per cent.
Perineurial fibroblastomas of acoustic nerve	90	=10 per cent.

Pituitary adenomas and	
adeno-carcinomas	48
Craniobuccal pouch tumors	11
Dermoids and epidermoids	8
Granulomas	9
Blood vessel tumors	10
Metastatic—invasive from	
bones of skull	38
Sarcomas—primary in dura or brain ..	17
Papillomas of choroid plexus	2
Orbito-ethmoidal osteomas	2
Miscellaneous	16
	<hr/>
Total	878

Tumors of the brain may be divided into different groups from several other points of view, i.e. with reference to the lobes of the brain which they involve, and with reference to their situation on the surface or within the substance of the brain.

A little more than one-third of the tumors were cortical and a little less than two-thirds were subcortical, as shown in the following table:

TABLE III

The Situation Of 878 Tumors Of The Brain

Cerebral in	64 per cent.
Predominantly frontal	19%
Predominantly temporal.....	18%
Predominantly parieto-occipital ...	13%
Predominantly Rolandic	3%
Predominantly on under	
surface of brain	11%
Cerebellar in	34 per cent.
Multiple in	2 per cent.
	<hr/>
Cortical in	39 per cent.
Subcortical in.....	61 per cent.

	Cortical Subcortical		
	%	%	
Predominantly frontal.....	8	11	=19 per cent.
Predominantly temporal.....	4	14	=18 per cent.
Predominantly parieto-occipital.	3	10	=13 per cent.
Predominantly Rolandic.....	1	2	= 3 per cent.
Predominantly on under surface of brain.....	10	1	=11 per cent.
Cerebellar	12	22	=34 per cent.
Multiple	1	1	= 2 per cent.
	<hr/>	<hr/>	<hr/>
Totals	39	61	100 per cent.

The large percentage of posterior fossa tumors is due to the frequency of cerebellar tumors in childhood, and the comparatively large percentage of growths on the under surface of the brain is due to the frequency of pituitary growths.

SLIGHT AND EARLY SYMPTOMS OF TUMORS OF THE BRAIN

Little, if anything, need be said with reference to the classical symptoms produced by tumors of the brain. When all of the well-known disturbances are found to exist, the diagnosis is not difficult to make although the exact situation of the growth may be uncertain. However, one or all of the symptoms may be lacking: an individual may have an intracranial neoplasm of considerable size without headache, or vomiting or papilledema.

There was no history of headache in almost five per cent of our patients, and this absence of headache was noted especially often in the meningiomas underneath the frontal lobes and in pituitary tumors. Some children with cerebellar tumors never suffer from headache in spite of the fact that there are other signs of increased intracranial pressure, and this absence of headache was relatively frequent in children in whom the sutures of the skull had become separated so that a certain amount of relief of pressure had occurred.

Headache alone, or convulsive seizures or mental changes without any change in the fundi, may be the only symptoms of an intracranial expanding lesion. In the majority of pituitary tumors, and in many of the meningiomas which lie underneath the frontal lobes and attached to the dura on the floor of the anterior cranial fossa, papilledema is rare, and primary optic atrophy or defects in the visual fields are frequent. Likewise in individuals with a high degree of myopia, the fundus changes which we know as choking of the discs may not occur. But it is not sufficiently appreciated that papilledema may be wanting for a long time in patients who have large meningeal growths over the convexities of the brain, and in some with slowly growing gliomas in the cerebral hemispheres. The absence of papilledema is not positive evidence against the existence of an intracranial neoplasm.

It may not be superfluous to point out that papilledema is in most instances a *late* sign of tumor of the brain and that the effort should be made to make the diagnosis before papilledema has occurred. In our experiences with tumors of the brain, at the Neurological Institute, the diagnosis is being made more and more often before any fundus changes have taken place. Sometimes the decision that a patient had an intracranial neoplasm was reached from slight x-ray changes in the skull, from shifting of the calcified pineal gland, or from an area of calcification in the tumor. At other times, the deformity or dislocation of the ventricles found on the x-ray films after the injection of air by the lumbar route, has led to the conclusion that the patient had an intracranial growth. If time permitted other matters might be spoken of, but I shall mention some significant facts in connection with the demonstration of some lantern slides.

Even when the patient has been carefully studied in a hospital by those who are devoting themselves to diseases of the nervous system, the diagnosis of tumor of the brain, and the localization of the growth are sometimes difficult.

However, if all of the facts are carefully weighed, and if one will not hesitate to do an encephalogram or a ventriculogram—even though the symptoms of which the patient complains are slight and the neurological evidences of disturbed function inconsiderable, or the examination entirely negative, a correct conclusion can be reached in the majority of instances.

In our experiences at the Neurological Institute the following fact stands out prominently. If one does not hesitate to use encephalography or ventriculography, the diagnosis and localization of tumors of the brain can be made as often in the early stages of the disease in patients who have slight disturbances as in those in whom the symptoms and signs are marked and the disease far advanced. Unfortunately, up to the present time, most of the patients are first seen and referred to the surgeon when the disturbances that we call “classical” are already present. Fortunately, as the years are passing, an increasing number of patients have entered the hospital for study because they were advised to do so on account of slight disturbances. If this advice will be more frequently given, we can look forward with confidence to the time when many tumors of the brain will be recognized and subjected to operation early in the course of their development.

As I have mentioned, recourse must often be had to the injection of air into the cavities of the brain. Sometimes it is probable that the patient has a newgrowth but its exact situation is not certain; at other times the localization is definite but the nature of the disease—whether neoplastic or vascular or inflammatory—is doubtful. In order to illustrate how often the introduction of air is necessary, I have collected the data concerning two hundred successive cases, which are given in the following tables:

TABLE IV

Number of Cases in Which Ventriculography or Encephalography Was Necessary

Location of Tumor	Number of Cases	Number in Which Ventriculography or Encephalography was Done
Cerebral	149	52 = 34.9 per cent.
Cerebellar	51	8 = 15.6 per cent.
Totals	200	60 = 30 per cent.

TABLE V

The Diagnosis and Localization of 200 Intracranial Tumors

Location of Tumor	Number of Cases	Diagnosis of Tumor		Localization of Tumor	
		Made by clinical examination	Made by ventriculography or encephalography	Made by clinical examination	Made by ventriculography or encephalography
Cerebral	149	121	28	118	31
Cerebellar	51	46	5	43	8
Totals	200	167	33	161	39
		83.5%	16.6%	80.5%	19.5%

THE TREATMENT OF TUMORS OF THE BRAIN

In the large majority of instances, surgery is demanded, subsequent to which x-ray therapy may be given. The hope that in patients with intracranial tumors Roentgen therapy would often be beneficial, has not been realized, and we have been reluctantly led to the conclusion that x-ray treatment will often fail to inhibit growth. Some tumors are, however, radiosensitive and in them excellent results are obtained by radiotherapy. Among these may be mentioned the midline posterior fossa tumors now classified as medulloblastomas, which are so frequent in childhood, and tumors of the pituitary body. In the former, x-ray therapy should be given only after a suboccipital craniotomy has been performed, while in the latter, x-ray treatment should

precede operative interference. As has been demonstrated by many others, and by Dyke, Gross and Hare in the Neurological Institute, great improvement both in the visual disturbances and in the general symptoms will often follow Roentgen therapy of pituitary tumors. The x-ray is also useful in tumors of the skull which have secondarily invaded the cranial cavity.

Theoretically, and to some extent from actual experience, the x-ray or radium should have a marked effect upon the blood vessels and in that way should influence the growth of the gliomas. If the medulloblastomas are excepted, the influence of radiation upon the growth of the gliomas has not been striking, although it may well be that more intensive treatment than the Roentgen therapist dares to give might yield better results.

Little time can be devoted to the subject of the surgical therapy, and a report would have little value unless details were given of the results of surgery in different histological types of growths and of growths in various parts of the brain.

Through improved methods of diagnosis and advances in technique, the results of surgery of tumors of the brain have steadily improved. To appreciate that the progress has been marked, one has only to recall that a few decades ago, the immediate operative mortality was between fifty and ninety per cent, while in the hands of the modern neurosurgeon, the immediate operative mortality of all tumors is nearly ten per cent, and in some varieties of tumors is only one to two per cent. The improvement in the immediate operative results has been due to the following factors:

1. The use of local instead of general anesthesia. General anesthesia adds greatly to the dangers of operations for tumors of the brain. During the past few years, avertin anesthesia has been found to be of great value, and I am now doing most of the cranial operations under avertin anesthesia alone, or avertin plus local anesthesia.

2. The scrupulous *prevention* of bleeding during cranial operations. I am convinced that in operations for tumor of the brain, the results of different surgeons will vary in direct proportion to the care that is taken, not in the control of bleeding after it has occurred, but in the prevention of bleeding and in the degree of gentleness with which the delicate brain tissue is handled. Electrosurgical methods have contributed not a little to the prevention of bleeding during these operations, and with this aid, tumors previously irremovable, can now be radically extirpated.

3. The increasing frequency with which tumors of the brain are recognized and operated upon early in their course.

Aside from the immediate operative results, the larger question that concerns us is—what is accomplished for the patient by the surgical treatment of tumors of the brain? The following statements are justified:

The results of the surgical treatment of the meningiomas are excellent—a majority of the patients recover entirely. The operative results in the gliomas still leave much to be wished for. In the patients with slow growing tumors, vision can be saved and life may be prolonged for many years. In only a small proportion of the patients, however, can the tumor be radically removed. When the time comes, as it surely will, that the disease is recognized earlier and surgery done at an early stage, the number of patients who will be permanently relieved will be much larger.

In the rapidly growing and malignant gliomas, especially in the spongioblastoma multiforme, a cure is never effected. The tumors are always so large and have involved so much of the brain that their radical removal can never be accomplished and recurrences are the rule. By an extensive tumor removal, the patients may be relieved of all symptoms so that for one or for several years they can lead a life of comfort and usefulness, but the final fatal outcome is in-

evitable. The average length of life after surgical interference in the malignant gliomas is one to three years. The results in pituitary tumors, by a combination of surgical and x-ray therapy, have been greatly improved in recent years, the relief of general symptoms and the preservation of eyesight being satisfactorily accomplished in fully one-half of the patients.

The results of surgery in the acoustic nerve tumors are good; many of the patients may be relieved of all their symptoms for many years or for the remainder of their natural life.

Can we hope for better results in the future? Much will depend upon the stage at which the disease is recognized and treatment instituted, and if I have succeeded in calling to your attention some of the facts upon which early recognition of tumors of the brain will depend, the purpose of this paper will have been accomplished.

GASTRO-INTESTINAL MANIFESTATIONS OF ALLERGY*

ROBERT A. COOKE

Introduction: The ideas on the intestinal manifestation of allergy, as presented in this paper, have been gained largely from cases with such other sensitizations as asthma, hay fever, urticaria and angioneurotic edema, in which the abdominal allergy was either a part of such a clinical state and due to the same cause or was purely concomitant and due to a specifically unrelated cause. Careful consideration of this material has led me to believe that its presentation and explanation would be of interest to gastro-enterologists and might help them to a better understanding of the allergic nature of certain functional disturbances frequently observed.

*Delivered before a Stated Meeting of the Academy, December 1, 1932.

In the acute allergies, especially well seen in infants sensitive to milk or egg, symptoms such as vomiting, abdominal pain and diarrhœa occur in association with edema of the lips, tongue and pharynx, general urticaria and perhaps asthma. In constitutional reactions following therapeutic injections, as for example, of pollen extracts, vomiting, abdominal distension, pain and diarrhœa may occur as evidences of the general allergic sensitiveness. Such observations bear witness to the fact that the gastro-intestinal tract is capable of allergic reactivity and may be involved in clinical disorders of this type.

The question then arises as to whether we may have clinical examples of allergy with symptoms so strictly or mainly abdominal that they would naturally come under the observation of the gastro-enterologist.

In order to answer this, we will undertake a discussion of the subject by considering:—

- 1st—Cases presenting symptoms of an acute surgical abdomen.
- 2nd—Cases presenting symptoms of so-called dyspepsia or indigestion.
- 3rd—Cases with symptoms of acute gastro-enteritis.
- 4th—Cases with symptoms of chronic diarrhœa and mucus colitis.

We will then attempt a brief exposition of the types of allergy and finally give some points that may be useful in arriving at a presumptive diagnosis.

1. The Acute Surgical Abdomen. The first case I will cite was reported by Janeway and Mosenthal in 1908 to the Association of American Physicians under the title, "An Unusual Paroxysmal Syndrome, Probably Allied to Recurrent Vomiting, with a Study of the N Metabolism," and was published in the Transactions of that year (p. 504). The diagnosis at that time was toxemia of endogenous origin. The essence of the history there recorded was as follows: A Jewish school-girl aged sixteen years suffered with recurring attacks which began, according to the

mother, when she was two weeks old. In early life the frequency was once a month and the longest period of freedom up to sixteen years was ten weeks. For a year attacks had come weekly and for three months every Friday with absolute periodicity. The attack was described by these authors as having a prodromal period of uneasiness, anorexia and epigastric or abdominal discomfort lasting from four to fourteen hours. Some very mild attacks did not go beyond this stage. Next there was a crescendo period with rapid increase of symptoms, prostration, anorexia, abdominal colic, and also pain referred to shoulders, hips or feet. There was fever, tachycardia and polynuclear leucocytosis. Maximum temperature, 104°; pulse, 140; leucocytes, 28,800. The only differential count recorded when leucocytes were 8,000 showed normal eosinophile count. Occasionally there was headache. The abdomen was rigid, with tenderness at times as extreme as in general peritonitis but varying in the location of maximum sensitiveness, which was usually to one side or the other of the umbilicus. Marked salivation was noted and in severe attacks there was constant nausea and belching and occasional vomiting, the vomitus containing free HCl. This stage lasted from eight to sixteen hours and was followed by the period of recovery with rapid subsidence of pain, then fever and leucocytosis within seventeen hours. She then felt well, had a voracious appetite and within a few days regained the four or five pounds lost in the attack. Gastric analysis showed slight hyperchlorhydria. This case was referred to me in 1916 by Dr. Halpert of Scranton who had originally referred her to Dr. Janeway. The subsequent history was that under later observation by Janeway at Johns Hopkins Hospital an exploratory operation had been done and the appendix removed. It was without effect. The severe attacks continued on the average of twice a month but the milder attacks were more frequent. In spite of this her nutrition remained good. Viewing this case at that time (1916) as a possible manifestation of allergy, the intradermal skin tests were done with such ordinary foodstuffs as milk, egg, cereals, meats and the

important vegetables and fruits. All tests were negative. The family history for allergy was negative. However with the hypothesis that this was allergy and probably an allergy to food, it was a logical conception to exclude at first those foods most commonly taken by a person from infancy to the age of twenty-four, hence milk, eggs and meats were eliminated. The attacks stopped. Milk was subsequently added to the diet on two separate occasions and the well-recognized prodromal symptoms appeared at the end of two or three days. After these two experiences the patient could not again be induced to take milk. When last seen in 1925 she had been free of all attacks. She never touched milk and was not then willing to repeat the experiment. Her two children showed no allergy up to that time. The sudden cessation of attacks of twenty-four years' duration by the withdrawal of milk, and the reproduction of mild attacks on two occasions by the use of milk seem to warrant the diagnosis of an allergy of a type that I will later attempt to explain.

The second case presents even more acute evidences of a possible surgical condition. Mrs. C. B., now sixty-four years old, has no antecedent history of allergy. Her daughter has a condition similar to the one about to be described, but much milder. At about twenty-five years of age she realized that fatty fish gave indigestion with fullness and belching. At the age of forty she began to have frequent severe abdominal attacks which she herself traced to the use of pork fat. Small amounts of lean pork may be eaten without trouble. Fats other than lard in quantity will give headache and dizziness. A typical attack from lard is described as follows: About two to three hours after the fat is eaten the attack begins with abdominal distress which progresses rapidly to pain so severe that she passes into shock. The vomiting is continuous and explosive; pulse rapid; skin pale, cold and clammy. Distension of the abdomen is extreme. Formerly the attack lasted twelve hours. Due to greater care, or loss of sensitivity, the recent attacks have been infrequent and mild. There is no fever. Blood counts have not been made. Tests

with lard by the patch and scratch methods show no evidence of skin sensitiveness. Two years ago this patient had a gallstone attack. There was sudden colicky pain for about half an hour every two or three hours. The entire attack lasted twelve hours and was finally relieved by morphine and atropin. The temperature was 101° . There was rigidity of the right upper quadrant and the gall bladder was palpable for several days. Jaundice was not deep but the stools were clay-colored. The extreme distension, vomiting and collapse symptoms were absent. The patient states that there was a marked difference between this illness and the attacks due to lard.

These two cases represent what at the present time we are wont to regard as *angioneurotic edema of the abdominal type*. In making a differential diagnosis between this and such surgical conditions as volvulus, strangulated hernia, mesenteric thrombosis or peritonitis, one cannot depend upon temperature or leucocyte count or local abdominal signs. Attention is called to the necessity of discovering any extra-abdominal signs and symptoms such as pain in the extremities (shoulders, hips and feet), headache, salivation and of course the history of repeated attacks, together with other allergies as urticaria and visible angioneurotic edema.

Whether edema of the intestinal wall is a strictly correct conception of the functional pathology is, I believe, a question that cannot be answered. Surgeons who have operated on certain of these cases during an attack report *no evident lesion*. Adrenalin injections do not give relief, but neither does adrenalin influence the external and visible manifestations of angioneurotic edema to an appreciable extent. Heretofore, we have very largely overlooked the possibility of interpreting these and similar symptoms of intestinal and gastric dysfunction as the result of a disturbance of the sympathetic or parasympathetic divisions of the autonomic system. How such disturbance is created we do not know, for there is no recognized allergy of nerve tissue, but there is no difficulty in conceiving of an edema

indirectly involving the nerves, plexuses or endings and analogous with the cases of cerebral angioneurotic edema.

2. Dyspepsia. Perhaps the most frequent symptom-complex of interest to the gastro-enterologist is that embraced by the term "dyspepsia," in which few or many of the symptoms of pyrosis, eructation, flatulence, hyperacidity, anorexia, fullness after eating, nausea or vomiting are present. To be sure these symptoms may be reflex and due to organic lesions of the appendix, gall bladder or the stomach (ulcer), but in many instances after careful examination they are rightfully attributed to functional disturbances only, and it is to these latter cases we refer.

It is a common experience in taking the histories of cases with asthma and hay fever to elicit also the statement that the patient suffers with indigestion. The gastric symptoms may coincide with the other allergies but more commonly they are unrelated phenomena. The histories of these cases are interesting in that they fall into two groups: First there are those patients who can state that a specific food produces the symptoms of dyspepsia. When eaten the symptoms are quite immediate—within fifteen or twenty minutes. They always occur with great regularity and when tested the skin reaction is quite uniformly positive and confirmatory. The immediateness of the symptoms enables a patient to make the correct diagnosis. These attacks are paroxysmal, abrupt and vary in severity. When such conditions are mild the patients do not consult a physician. They abstain from the offending article. In the second group the symptoms of indigestion are more chronic and more troublesome because the patient cannot relate the trouble to any particular food. I recall one patient, a woman of twenty-five, who in addition to mild urticaria, complained of pyrosis, eructation, fullness and anorexia of six months' duration. The tests in this case were negative. By restrictive diets it was finally determined that the trouble was due to fish taken twice a week. Elimination of fish produced a cessation of both urticaria and dyspepsia. When eating fish the symptoms would not

return for several weeks. This case represents the delayed, not the immediate, clinical reaction, hence cause and effect are not obvious to the patient, and where the clinical reaction is delayed, the skin test is always negative. Such cases usually have a threshold of tolerance, and this adds greatly to the difficulty of diagnosis. In this group of delayed allergies with chronic dyspepsia a large number are associated with asthma secondary to sinus infection. The frequency of symptoms of indigestion in association with asthma is well recognized and in this particular group of infective asthma the incidence of associated "dyspepsia" is as high as 30 per cent. One indication that the digestive disorder may be considered as allergy lies in the fact that the proper clearing of infection, where such is possible, produces a cessation of the gastric as well as the bronchial manifestations. This brings up the question of bacterial allergy, which can and does exist and in which gastro-intestinal symptoms may play either a minor part in the allergic symptom-complex or they may dominate the picture. Since it is true that sinus disease may produce both asthma with dyspepsia and asthma without dyspepsia or urticaria or angioneurotic edema without asthma, I believe that the hypothesis is plausible that indigestion without other allergies may be the result of a bacterial allergy, hence consideration must be given to focal infection acting allergically to cause such functional disturbances.

3. Acute Gastro-enteritis. Acute gastro-enteritis with nausea, vomiting and severe diarrhœa may be due to ingested substances, either foods or drugs, and reference is not made here to the ptomaine poisoning from tainted foods. When the onset of symptoms is immediate, that is within an hour of eating, the patient is usually aware of the cause or soon becomes so after several attacks. I recall one instance in which beer was the cause. In such cases skin tests are positive. But in patients with symptoms just as acute in which the interval is longer—a delayed reaction of from four to twelve hours—the patient's diagnosis is less apt to be correct and the difficulty to the physician is greater, for the skin tests will be negative.

When attacks are infrequent and due to some food rarely taken, such as clams, a presumptive diagnosis is easy, and if the patient acquiesces it can be verified by clinical test. But when due to some food commonly taken in which the threshold of tolerance is reasonably great, the clinical procedure of restrictive diets must be resorted to.

4. Chronic Diarrhœa. Mucus Colitis. I have seen a number of cases, usually in connection with other allergies, in which symptoms are never acute and severe but in which either a persistent diarrhœa or symptoms of a so-called mucus colitis were present. In these cases symptoms disappear quite promptly upon avoidance of the specific food. Milk and egg have been found to be the most frequent causative factors. The skin tests are usually negative, for the clinical reaction is delayed. In children particularly, and here again my observations have been in those with an associated allergy, we see a symptom complex not directly related to asthma in which there is marked anorexia, abdominal discomfort rather than pain, with listlessness and fatigueability, with marked evidences of under-nutrition and with looseness of the bowels often alternating with constipation, but with excessive mucus in the stool. I recall a case of asthma due to rabbit dander, in which the symptoms just mentioned were very prominent. The removal of milk from the diet produced a really impressive change in the child's condition with a gain of nearly eight pounds in six months. Such cases are, I believe, analogous to the first case I cited, formerly reported by Janeway, but never so severe, the symptoms being limited to those of the prodromal stage of that case.

We cannot go deeply into an explanation of Allergy but I will briefly sketch our conception of the reactions as they pertain to the cases referred to. In allergy we have many different reactions: Some may be induced artificially and are physiological, as serum disease; some cannot be induced and are natural or spontaneous, as asthma, and rest upon an hereditary or constitutional basis. Pathologically, the reaction may be one of hyperemia, edema, exudation or

inflammation. The clinical symptoms are varied and depend upon the tissue involved in the hypersensitive reaction. Immunologically, the reactions may be immediate or delayed and this point I wish to emphasize, for the usual conception of the allergist is that his function is solely to perform skin tests for diagnosis. As evidenced by the cases cited, this is not so. Many cases of true allergy are not skin sensitive. In hay fever we have allergy in which the clinical symptoms are immediate, that is, they occur within fifteen to sixty minutes of contact. In practically all such cases the skin test is positive. Bear in mind that the positive skin test is itself an immediate reaction and therefore will indicate only the immediate type of clinical reaction. On the other hand, when the clinical symptom is delayed the skin test is negative. In the immediate reactions we find demonstrable antibody in the skin and blood, but in the delayed reaction antibody is not found. In the former case we are testing with the substance for which there is specific antibody. In the latter case we can only assume that the real allergen is some chemical derivative of the apparent allergen and is produced and elaborated within the body hours after it has been introduced. If, for example, in our cases of delayed reaction to milk, it could be determined what this elaborated fraction of milk is, then it is conceivable that the skin test might be positive. But such knowledge still lies beyond our grasp.

Diagnosis. In the matter of diagnosis, then, certain points may be cited that will aid in an assumption of clinical allergy. Since allergy is in many cases a constitutional disorder based upon hereditary influences a careful family history for allergy in the antecedents, both direct and collateral and also in brothers and sisters or even in children, is of value. Of greater importance is the history of other allergies, either past or present, in the patient.

Skin tests should be done in suspected cases for they may give a definite diagnosis, but I have already pointed out and again emphasize the fact that negative skin tests

do not exclude allergy, for positive reactions are not found in those cases with the delayed clinical reaction. In some, eosinophilia is present.

One striking peculiarity of clinical allergy is the frequent repetition of attacks or its distressing chronicity. This is evidenced in practically all the cases cited. Though usually not serious from the standpoint of mortality, allergy may form a serious problem for patient and physician alike unless the cause can be ascertained and removed.

Let us now answer concretely, and I hope in not too unsatisfactory a way, the question asked at the beginning of this paper by saying that gastro-intestinal symptoms do occur as the result of allergies frequently, in my experience, in connection with other allergies, but not necessarily so. The cutaneous tests may help in the diagnosis in a certain percentage of these cases, but to my mind what is even more important is a careful clinical study with the allergic viewpoint in mind.

SIMPLE ACHLORHYDRIC ANEMIA*

NATHAN ROSENTHAL

AND

HAROLD A. ABEL

General Considerations:

In recent years, many articles have been published concerning a type of idiopathic microcytic anemia which has been given various names. The simple achlorhydric anemia of Witts (1), Davies (2), Hare (3), Hurst (4), and Haden (5), the cryptogenic achylic chloranemia of Kaznelson, Reimann and Weiner (6), the primary hypochromic anemia of Dameshek (7), and Waugh (8), the idiopathic hypochromemia of Mills (9), the idiopathic secondary anemia of Watkins (10), the simple achylic anemia

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of Meulengracht (11), and the chronic chlorosis of Adamson and Smith (12), all belong to the same clinical syndrome.

Although the association of achlorhydria and pernicious anemia was known for many years previously, Einhorn (13), in 1903, reported 15 cases of gastric anacidity in three of which simple anemia was present. Priority, however, should be credited to Faber (14) for describing the complete clinical picture of simple achlorhydric anemia. Of 112 cases of achylia gastrica reported in 1909, he found 20 cases with secondary anemia of the type under consideration. In 1913 a further communication by Faber (15) reported 207 cases of achylia with 23 simple anemias.

Weinberg (16), in 1920, studied 77 cases of constitutional achylia and found 15 cases (19 per cent) associated with secondary anemia. Faber and Gram (17), in 1924, described an additional 90 cases of achylia with 41 per cent simple anemias.

Weiner and Kaznelson (18), in 1926, reported the first descriptions of bone-marrow sections made at biopsies in these cases. These findings have been substantiated by Witts (1) and Dameshek (7).

The disease is a hypochromic microcytic type of anemia, occurring predominantly in middle-aged women, and usually associated with an achlorhydria or possibly an hypochlorhydria. Its etiology is obscure. Its course is protracted with a tendency to remissions and exacerbations. Excellent results in its treatment have been reported from the use of adequate doses of inorganic iron preparations.

In a survey of all patients with anemia, from whatever cause, examined during the past 5 years, the authors have been able to classify 43 cases as simple achlorhydric anemia. Of these patients 6 developed anemia after gastric surgery, 5 having had partial gastrectomies and the other, a physiological total gastrectomy for carcinoma of stomach. Lues was found as an associated condition in 6 cases.

During the same period a large number of other cases of hypochromic anemia was studied. These differed from the above-mentioned syndrome with respect to age, sex, and the constant presence of hydrochloric acid in the gastric contents. These anemias correspond to chlorosis. There is no doubt that the majority of these also have an associated iron deficiency but in addition some nutritional disturbance as well. Although some patients may present the chronic course of the achlorhydric group, the anemia usually does not recur after treatment particularly in children and young individuals. Such cases will be discussed in more detail in a subsequent communication.

In all the patients, gastric analyses were made by the Rehfuess fractional determination, and the majority of those who showed anacidity were re-examined, using histamine and neutral red. In a small minority of the achlorhydrics there was an absence of pepsin and rennin as well.

Typical blood changes in some of the cases are presented in the table. The normal blood picture and also that of pernicious anemia are included for comparison.

Incidence:

The sex of the patients was predominantly female (80 per cent), only 20 per cent having been males.

Most of the patients were in the fourth and fifth decades of life, the youngest being 20 years of age and the oldest 65.

No particular race or nationality showed any special predisposition; nor did any occupation appear to bear a causal relationship.

Etiology and Pathogenesis:

The underlying cause of simple achlorhydric anemia depends upon a number of factors, viz.: (1) an achlorhydric constitution or the so-called chronic abdominal invalid of Witts (19); (2) iron deficiency; (3) nutritional disturbances; (4) associated complicating conditions.

There is no doubt that the close association of achlorhydria with iron deficiency etiologically segregates the so-called achylic type from other disturbances, and that associated complicating conditions are of slighter consequence in the pathogenesis of this particular group. In the normochlorhydric group (or chlorosis) such complications are possibly more important, causing a greater iron demand and, therefore, producing an iron deficiency.

The more recent opinions regarding the pathogenesis of achlorhydric anemia would seem to incline to an iron deficiency, either as to intake or assimilation. In clinical experiments on achlorhydric patients with anemia Mettler and Minot (20) showed that iron is absorbed best when the reaction of the duodenum and jejunum is acid, and that large doses are necessary for optimal response.

Heath, Strauss and Castle (21) conclude that, "a simple explanation is offered for the effectiveness of iron therapy in certain types of hypochromic anemia, namely, that these types of anemia are due to a deficiency chiefly of iron, preventing adequate hemoglobin formation."

A similar view is expressed by Dameshek (7) who believes that inadequate gastric digestion of iron may lead to faulty hemoglobin synthesis, and thus results in improper maturation of the immature red elements of the bone marrow.

Davies (2) is of the opinion that iron deficiency arises in achlorhydrics from the ingestion over long periods of concentrated foods because of post prandial discomfort which occurs after the intake of protein foods and vegetables.

In discussing the cases of hypochromic anemia in pregnancy, Strauss (22) and Strauss and Castle (23) conclude that the added demands for hemoglobin during gestation result in an iron deficiency conditioned by gastric anacidity or low acidity.

Witts (1) associates the development of this anemia

with the stress of the reproductive era in women who have some inherent inadequacy of the blood forming system, particularly in the synthesis of hemoglobin. In the induced achlorhydria of gastrectomized patients he believes diet, deficient in iron content, together with poor iron assimilation are important factors in the development of the anemia.

Bloomfield (24) is likewise inclined to believe that because of the predominance of this anemia in females, it is in some way linked to the menstrual function in individuals who have some erythropoietic deficiency, either primary or secondary to faulty diet.

It has been held by some that achlorhydric anemia is closely allied to pernicious anemia. Davies (2) and Zadek (25) describe an intermediate group which falls between these two extremes and which responds to both liver and iron. Gram (26) has reported a family traced through three generations in which pernicious anemia or achlorhydric anemia occurs in different members of the same family. One case was followed from its inception as a hypochromic anemia to a fully developed pernicious anemia. Dameshek (7) believes hypochromic anemia is related in some way to pernicious anemia, of which it may be an abnormal type.

The artificial production of achlorhydria through partial or total gastrectomy may throw additional light on the etiology of hypochromic anemia. Only 5 per cent of our series of 50 cases of subtotal gastrectomy including one total gastrectomy (who has been followed 2 years) developed anemia. These have been hypochromic in type, and in no case has pernicious anemia been observed.

Achlorhydric anemia, therefore, may be regarded as a disturbance of iron metabolism which occurs chiefly in women during the period of sexual maturity.

Symptomatology:

These are variable but patients usually seek aid because of the symptoms arising from the anemia, viz.: weak-

ness, palpitation, dyspnea, and, occasionally, edema of the extremities. Less commonly, soreness of the tongue, paræsthesias, or menorrhagia are the chief complaints. At times gastric disturbances—such as anorexia, nausea, epigastric distress and diarrhea are the chief complaints. Most of the patients regard their illness as of long duration.

The patients present marked evidences of anemia. The color of the skin is somewhat yellowish or waxy. Haden (5) emphasized the importance of the blue sclerae observed in such cases in contradistinction to the yellow sclerae in pernicious anemia. In the more severe cases, hemoglobin below 40 per cent, enlargement of the area of cardiac dullness may be found, and usually an associated hemic murmur is heard. A sub-febrile temperature, so-called anemic fever, may likewise be observed. In some instances the temperature may be considerably increased—as high as 103° to 104°. Atrophy of the papillae of the tongue is occasionally present. Palpable liver and spleen are observed less constantly. Loss in weight occurs in a considerable number of cases. In the hypochromic cases, an unusual finding is the brittleness of the nails, and even koilonychia or spoon nails, which are frequently noticed by the patients themselves.

The combination of fever and a cardiac murmur in one patient with hemoglobin of 18 per cent led to the diagnosis of subacute bacterial endocarditis. Marked improvement occurred with iron medication. With the improvement of the blood status, the fever and cardiac signs disappeared.

Hematological Findings:

The blood picture (See Table) is characterized by severe or moderately severe secondary anemia associated with low color index (usually 0.5 or below). The proportionate reduction of the hemoglobin is therefore greater than of the red cells. The lowest hemoglobin was 18 per cent with red cell count of 1,830,000. The color index varied from 0.5 to 0.7.

Although the hemoglobin, red cell count and color index are indicative of the type of anemia, other important findings are of value. The average diameter of red cells determined by the method of Price-Jones (27) (Chart 1) is usually well below 7.0 micra, and the mean diameter varies between 5.5 micra and 6.5 micra. Diameter of the red cells in other types of hypochromic anemia (i.e., with free hydrochloric acid) and in this variety of anemia associated with lues, shows a tendency to larger sized red cells (See Table). In the former, they may reach a mean diameter of 7.0 micra, and in the latter the diameter was as high as 7.2 micra.

This diminution in the size of the red blood-cells (Figs. 1 and 2) is accompanied by a proportionate diminution in average relative cell volume. The normal volume of the packed red cells is 46 c.c. per 100 c.c. of blood. The volume of red cells in this type of anemia is considerably diminished

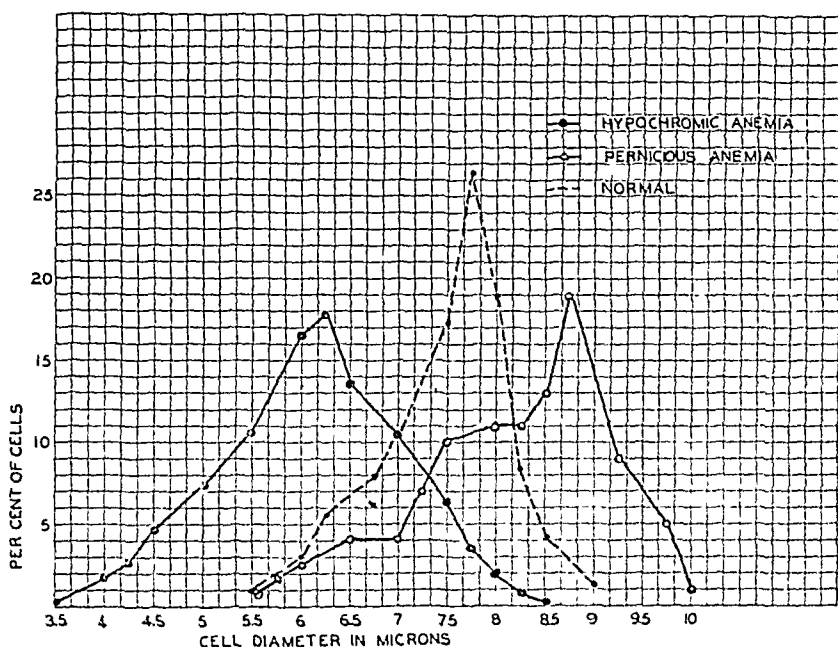


Chart 1. Price-Jones Curves in Simple Achlorhydric Anemia Compared with Pernicious Anemia and the Normal Curve. The Mean Diameter of Red Cells—Simple Achlorhydric Anemia 6.0, Normal 7.5, Pernicious An-

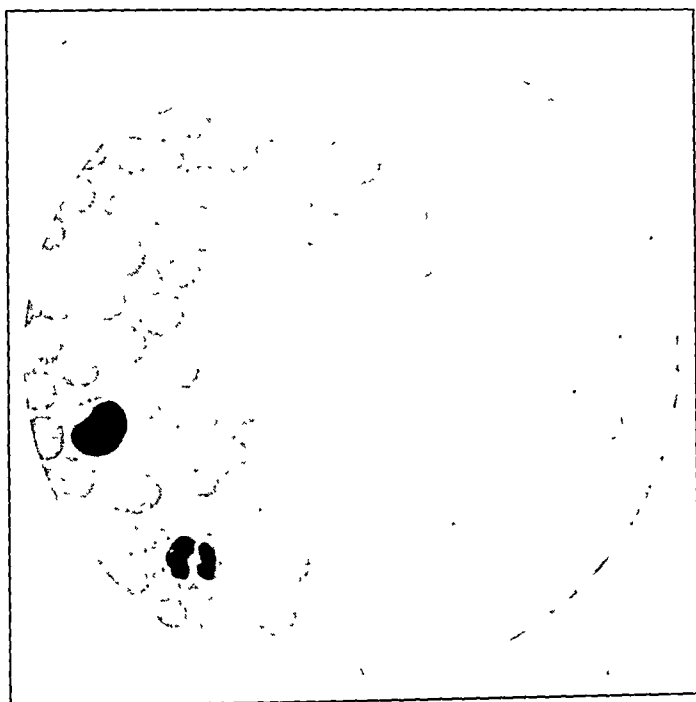


Fig. 1. Blood Smear in Simple Achlorhydric Anemia (Luetic) Following Blood Transfusion. Note the Microcytosis in Comparison with the Normal Transfused Cells. (X 1000).

(See Table). In the author's series, variation from 19 c.c. to 37 c.c. occurred, or in relation to the average normal volume from 41 per cent to 81 per cent. Similarly, there is also a diminution of the mean corpuscular volume (Wintrobe (28)), and of the volume index (Capps (29)).

This microcytosis of the red blood-cells is well demonstrated after blood transfusions (Fig. 1), or by superimposing the blood smear from an hypochromic anemia on that from a normal patient.

In the blood smear, the red cells are found to be definitely hypochromatic (Fig. 2). There is marked increase in size of the central pale area, so that the hemoglobin is concentrated or piled up at the periphery in most of the small

red cells (anachromasia). Few cells appear normal (orthochromasia). In the very severe anemias, marked poikilocytosis occurs.

The reticulocytes are either normal or absent. The fragility of the red cells is usually normal. Occasionally, an increase of the minimal fragility may occur especially after pregnancy and in the rare type with dysphagia (Vinson Plummer syndrome, 30).

The number of white blood-cells is either normal or considerably diminished. The differential blood picture of the leucocytes is usually normal. Occasionally, a slight eosinophilia is found. The size of the polymorphonuclear cells is normal in contradistinction to their increase in size in pernicious anemia.

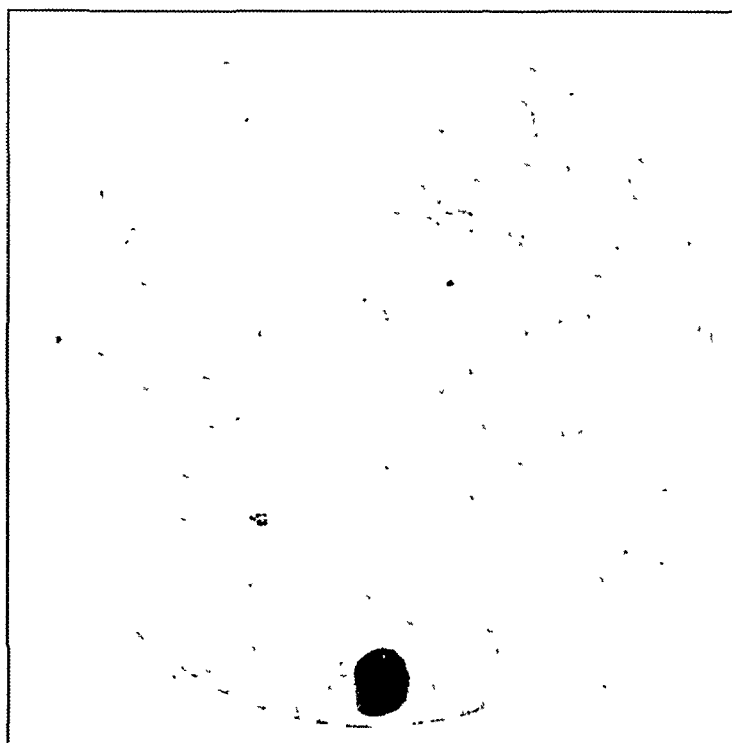


Fig. 2. Blood Smear. Achlorhydric Anemia. Anisocytosis, Poikilocytosis Generalized Microcytosis, and Anachromasia (Hemoglobin 32 Per Cent). (X 1000).



Fig. 3. Smear of Bone-Marrow. Note Numerous Normoblasts, Few Megaloblasts and Mitotic Megaloblasts. Premature and Mature Granulo-cytes Present. (X 1000).

The blood-platelets may be reduced, normal or slightly increased. Occasionally, in the more profoundly anemic cases, they are markedly reduced (as low as 100,000). The morphology of the platelets is normal.

Bone-Marrow:

An erythroblastic (normoblastic) reaction is characteristic (Fig. 3). This occurs not only in the achlorhydric group, but in the hypochlorhydric and normochlorhydric type. In one case of achlorhydric anemia associated with lues, in which treatment with iron as well as transfusions was unsuccessful, a normo-erythroblastic hyperplasia was found. An unusual finding in this case was also a simple gastric ulcer associated with achlorhydria.

Association with other Conditions:

The occurrence of hemorrhoids, menorrhagia, organic (not malignant) gastric or intestinal lesions, is not infrequent in other disorders. Their presence, however, in cases with achlorhydria, hypochlorhydria, and at times, normochlorhydria, may be a predisposing factor in the early development of the anemia. In fact, some of the well-defined cases of hypochromic anemia have been admitted to the hospital for other conditions. This is well illustrated in one of our recent cases, first seen by a laryngologist for nasal polypi. On admission to the hospital, it was noticed that the patient had an intense pallor and examination of the blood revealed typical hypochromic anemia (hemoglobin 32 per cent, red cells 3,650,000), with complete achlorhydria. With iron treatment, the hemoglobin rose to 67 per cent in four weeks, when the patient had a large number of polypi removed without undue hemorrhage.

In another instance, the patient was first seen by an ophthalmologist for partial amblyopia. On examination, it was observed that the vessels were paler on the disc than they were peripherally, a usual finding in patients with a hemoglobin below 30 per cent. This was confirmed by blood studies of the case (hemoglobin 26 per cent, red cells 2,980,000). After several weeks of iron therapy the eyesight improved with the rise in hemoglobin to 72 per cent.

The presence of any of the following associated conditions may induce or aggravate the severe anemia: (1) menorrhagia; (2) hemorrhoids; (3) pregnancy; (4) lues; (5) intestinal infestation; (6) nasal polypi; (7) hyperthyroidism or hypothyroidism; (8) gastric or duodenal ulcer; (9) improper diet.

The anemia may subside in some cases without particular attention to these complications. In others, however, improvement does not occur until such factors are specifically treated. Rhoads and Castle (31) observed frequent

associations of achlorhydric anemia and ankylostomiasis which improved rapidly on iron medication. Cases in which the hook-worm is eradicated recover rather slowly unless iron is administered. In one of our cases resistant to treatment on account of metrorrhagia, no response to iron was obtained until an hysterectomy had been performed.

Prognosis:

The prognosis in hypochromic anemia, with respect to life is favorable. The syndrome, however, runs a chronic course, and, unless therapy is continued indefinitely, the patient will experience exacerbations of symptoms.

Treatment:

The only successful therapeutic agent available is inorganic iron. Attempts have been made to treat this type of anemia with ventriculin, liver, liver extract, and fetal liver, but have resulted in failure. Our most consistent results have been obtained from the use of iron in dosage of at least ten grains three times a day. Iron ammonium citrate, saccharated carbonate of iron, reduced iron, and Bland's pills have been used with equally favorable results in the dosage indicated. After a week or two on any one of these preparations, the hemoglobin begins to increase and the patients feel and appear better. The reticulocyte count rises, but not to the same degree as after beginning liver therapy in pernicious anemia. On an average, 3 to 8 reticulated cells per hundred erythrocytes can be counted. With respect to the use of copper in addition to the iron, the authors have not found recovery to be any more rapid when added.

In addition to this specific therapeutics, most of our patients are given hydrochloric acid and pepsin. They are placed on a well-balanced, full diet in the hospital, and are urged to continue this diet when they return home. Curiously enough, once improvement has begun, the patient has little or no difficulty in assimilating meats and vegetables, whereas previously these were not tolerated, the diet having been limited to bread and cereals.

The use of iron should be continued almost indefinitely. In analyzing the results, it has been found that steady improvement may be expected while patients are under direct supervision in the hospital. As soon as they are transferred to the Out-Patient Department, there is less tendency to improve. This may be due to (1) laxity in continuing medication, and (2) economic stress, i.e., inability to secure the adequate diet which should complement the iron.

A certain number of cases seem to be resistant to iron, no matter how large an amount is given. These do not seem to respond to any form of therapy now in use, most of them having either neglected their symptoms for years, or having gone through many cycles of remission and exacerbation.

Alterations in the Blood Picture During Treatment:

As iron is almost a specific, continued observation of the blood changes is of great interest. The hemoglobin increases rapidly to almost normal, or slightly below. This increase is much greater than the proportionate increase in the red cells. The red blood-cells increase to the normal number and in some instances may rise to above 6,000,000. The morphology of the red cells shows changes from the beginning. Poikilocytosis soon disappears, anachromasia gives way to the normal or orthochromatic red cells. The color index tends to return to normal. The reticulocytes which are normal at first increase slightly (3 per cent to 8 per cent) within a week.

The size of the red blood-cells shows a tendency to slow recovery to the normal. The microcytosis apparently persists much longer than the other changes.

The volume of packed red cells conforms to the improvement in the clinical condition. As the hemoglobin increases with and without a corresponding increase in red blood-cells, the volume percentage as well as the relative cell volume gradually return to normal. The volume index and mean corpuscular volume also tend to return to normal.

Summary:

1. Simple achlorhydic anemia is a syndrome which occurs most frequently in middle-aged women.
2. The anemia is characterized by microcytosis and low color index.
3. Iron deficiency is probably the underlying factor in the development of the anemia.
4. Certain conditions may be contributory to the development or aggravation of the anemia, such as, uterine hemorrhage, hemorrhoids, intestinal infestations, and nutritional disturbances.
5. Adequate doses of inorganic iron (reduced iron—thirty grains daily) usually act as a specific.

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RESOLUTIONS ADOPTED AT A MEETING OF THE COUNCIL HELD DECEMBER 28, 1933

Death of Dr. William Sydney Thayer

RESOLVED, that the Council of The New York Academy of Medicine desires to record upon its minutes its deep sense of loss in the death of Dr. William Sydney Thayer, an Honorary Fellow of this institution. Dr. Thayer was a skillful physician, a brilliant teacher and a cultured gentleman whose high-minded principles, attractive personality and sterling character brought to him the affection of his patients, the admiration of his students and the highest regard of his professional colleagues which he richly deserved.

American Students in Foreign Medical Schools

RESOLVED, that the Council of The New York Academy of Medicine learns with great satisfaction that the Council on Education and Hospitals of the American Medical Association, the Federation of State Medical Boards, the Association of American Medical Colleges and other organizations, have undertaken serious consideration of the problem of American students in foreign medical schools and desires to offer its cooperation in so far as it may to the end that a satisfactory solution be obtained.

Proposed Institute of Probation

RESOLVED, that the Council of The New York Academy of Medicine approves of the outline of lectures which have been prepared by the Court of General Sessions in the County of New York and wishes to express to the Court its congratulations on having made such an able beginning, and offers its hearty cooperation toward furthering the educational opportunities of those who are engaged in probational activities.

REVISION OF CONSTITUTION AND BY-LAWS

RESOLUTIONS ADOPTED AT THE STATED MEETING OF JANUARY 5, 1933

RESOLVED, that the amendments to the Constitution and By-laws are hereby approved to take effect immediately and be it further

RESOLVED, that all Fellows elected prior to January 5, 1933 shall retain the title of Fellow, and be it further

RESOLVED, that all Associate Fellows elected prior to January 5, 1933, shall retain the title of Associate Fellow, and be it further

RESOLVED, that those Sections of the amended Constitution and By-laws adopted on January 5, 1933 which provide for the election of Members shall not apply to candidates for election to Fellowship or Associate Fellowship whose applications were received prior to that date.

The amended Constitutions and By-laws are being printed and will be distributed shortly.

RECENT ACCESSIONS TO THE LIBRARY

Association for Research in Nervous and Mental Disease. Infections of the central nervous system.

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Paris, Masson, 1932, 268 p.
- Williams, J. H. H. A century of public health in Britain, 1832-1929.
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PROCEEDINGS OF ACADEMY MEETINGS

DECEMBER

STATED MEETINGS

Thursday Evening, December 1, at 8:30 o'clock

Program arranged by the

SECTION OF MEDICINE

and the

NEW YORK GASTRO-ENTEROLOGICAL ASSOCIATION

I. EXECUTIVE SESSION

- a. Election of Officers
- b. Election of Fellows
- c. Report of Nominating Committee

II. PAPERS OF THE EVENING

- a. Gastro-intestinal manifestations of allergy, Robert A Cooke
Discussion, Franklin A. Stevens (by invitation), Albert F. R. Andresen
 - b Gastric achlorhydria and its relation to the blood picture
 - 1. Digestive aspect, Wm Bosworth Castle, Boston (by invitation)
 - 2 Hematological aspect, Nathan Rosenthal (by invitation), Harold A Abel (by invitation)
 - 3. Discussion, Joseph E. Connery, Cornelius P. Rhoads
 - c Carcinoma in some chronic ulcerating lesions of the stomach, George W. Holmes, Boston (by invitation)
- Discussion, Ross Golden

Thursday Evening, December 15, at 8.30 o'clock

THE THIRD HARVEY LECTURE

"THE NATURE OF THE MENSTRUAL CYCLE"

GEORGE W. CORNER

Professor of Anatomy

University of Rochester, N. Y.

SECTION MEETINGS

SECTION OF SURGERY

Friday Evening, December 2, at 8 30 o'clock

ORDER

I READING OF THE MINUTES

II. PRESENTATION OF CASES

- a Two cases of Mikulicz resection of descending colon, John E. Sutton, Jr.
- b. 1. Two cases of synovectomy of the knee joint
- 2. Two cases illustrating the use of the Nicola operation for dislocation of the shoulder, Russell H. Patterson
- c 1. Broncho-esophageal fistula, mediastinitis—gastrostomy, retro-pharyngeal drainage
- 2 Carcinoma of the extrinsic larynx—gastrostomy, tracheotomy, and external radiation, William L. Watson
- d. Cases illustrating paper of the evening, Herbert M Bergamini

III PAPERS OF THE EVENING

- a Observations on the stimulation of bone repair in the treatment of fractures, Herbert M Bergamini
- b. Fractures of the base of the radius in adults, Nelson W Cornell

IV. GENERAL DISCUSSION

V. EXECUTIVE SESSION

Election of Secretary

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Tuesday Evening, December 6, at 8.00 o'clock

ORDER

I. READING OF THE MINUTES

II. PRESENTATION OF PATIENTS

- a. Patients from the Vanderbilt Clinic

b. Miscellaneous patients

III. GENERAL DISCUSSION

IV. EXECUTIVE SESSION

SECTION OF PEDIATRICS

Thursday Evening, December 8, at 8:30 o'clock

ORDER

I. PAPERS OF THE EVENING

- a. The value of large sections in the pathological study of pneumonia, Charles Hendee Smith, Irving Graef (by invitation), Elizabeth Torrey Andrews (by invitation)
 - b. Presentation of report on infant mortality for New York City, Shirley W. Wynne (by invitation)
- Discussion, Philip Van Ingen, Bela Schick, Herbert B. Wilcox, Louis C. Schroeder, Shirley W. Wynne

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday Evening, December 13, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES

II. PAPERS OF THE EVENING

- a. The conditioned reflex in relation to psycho-analytic technic, Lawrence S. Kubie, (15 minutes)
- b. Turning points in the analysis of a case of alcoholism, George E. Daniels (by invitation), (15 minutes)
- c. The psycho-analytic viewpoint of drug addiction, Sandor Rado, Berlin and New York (by invitation), (35 minutes)

III. DISCUSSION, A. A. Brill, George W. Henry, Smith Ely Jelliffe, Paul Schilder

IV. EXECUTIVE SESSION

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, December 16, at 8:30 o'clock

I. READING OF THE MINUTES

II. PRESENTATION OF CASES

- a. From the Hospital for the Relief of the Ruptured and Crippled
 1. Cases illustrating the modified loop operation for paralytic equino-valgus, Armitage Whitman
 2. Thrombo-angiitis obliterans—collateral circulation of four years' standing induced by excision of segment of femoral artery, Lewis Clark Wagner
 3. Congenital dislocation of the hip. Cases showing two stage operation, Paul C. Colonna
 4. Fractures of the cervical vertebrae, Barclay W. Moffat
 5. X-ray findings in various non-suppurative conditions of the spine, Raymond W. Lewis
- b. From the Orthopedic Service of St. Luke's Hospital
 1. Treatment of scoliosis by the hinged jacket and fusion—two cases

2. Multiple infectious arthritis. Synovectomy of knee joint
3. Extensive burns of both legs with suppurative arthritis of knee joint treated by skin graft and fusion of knee joint, Mather Cleveland
4. Chronic suppurative osteomyelitis of the tibia of long standing. Excision of tibial shaft. End result
5. Avulsion of tibial tubercle (Osgood Schlatter's Disease) treated by fixation of the tubercle with bone pegs, David Bosworth (by invitation)

SECTION OF OPHTHALMOLOGY

Monday Evening, December 19, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES

II. DEMONSTRATION OF CASES

1. An obscure affection of the conjunctiva simulating Parinaud Conjunctivitis, A. Fine (by invitation)
2. Melano-carcinoma of the inner canthus; excision and endothermy, Clyde E. McDannald
3. Encapsulated hemangioma of the orbit removed by blunt dissection, Henry H. Tyson
4. a. Melano-carcinoma of the bulbar and palpebral conjunctiva. Biopsy
b. Encapsulated tumor of the orbit removed by blunt dissection
c. Cases of epithelioma of the lid treated surgically, John M. Wheeler
5. a. Drawings of a case of melano-carcinoma of bulbar and palpebral conjunctiva in different stages of its development and microscopic specimens
b. Four cases of epithelioma of the lid treated with radiation
c. Dense pigmentation of the upper and lower lid following excision and radiation of melano-sarcoma of the orbit, Algernon B. Reese
6. a. Sarcoma of the choroid. Enucleation and local recurrence
b. Epithelioma of the lid; excision and plastic repair, Webb W. Weeks
7. Epithelioma of the lower lid; excision and plastic, Daniel B. Kirby
8. Melano-sarcoma of the iris, locally excised. Drawing before operation and presentation of patient after operation, Andrew Rados (by invitation)
9. Melanoma of the iris, Walter Guernsey Frey, Jr.
10. Melanoma of the iris, E. L. Falk (by invitation)
11. Cyst of the iris (question of sarcoma), Osborne P. Perkins
12. Epithelioma of the limbus. Operated, Ben Witt Key
13. a. Tumor of lacrimal gland
b. Epithelioma of the lid
c. Angioma of the orbit
d. Questionable tumor of the orbit; for diagnosis, Conrad Berens

14. Angioma of the choroid, Francis W. Shine
15. Pseudo intraocular tumor, Willis Knight (by invitation)
16. Tumor of the optic nerve, Olga Sitchevska (by invitation)
17. Orbital lymphoma, Martin Cohen
18. Orbital tumor. X-ray result, Joseph Ziporkes (by invitation)
19. A case of thrombosis of the central retinal vein in which the ocular hypertension was relieved by x-ray treatment, Francis X. Brophy (by invitation)
20. The x-ray and radium aspects of the clinical cases presented was discussed by Ira I. Kaplan

The demonstration of patients began at 7 o'clock.

The Advisory Committee selected some of the cases presenting unusual and instructive features for discussion at the scientific meeting.

SECTION OF GENITO-URINARY SURGERY
Wednesday Evening, December 21, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PRESENTATION OF CASES
 1. Hypernephroma, metastases in lungs disappearing spontaneously.
E. Beer
 2. Review of 163 kidney tumors, A. Hyman
 3. Benign hypernephroma of kidney, L. Edelman
 4. Sodium-ortho-iodo-hippurate, a new preparation for intravenous and oral urography, M. Swick (by invitation)
 5. Welch bacillus infection following kidney operation; culture of calculi showing Welch bacillus, E. Beer
 6. Two bladder diverticula recurring after operation, L. Mann
 7. Caliceal pathology, W. Mencher
 8. Analysis of causes of persistent suprapubic fistula, E. Beer
 9. Long continued fevers following removal of tuberculous kidney, miliary tuberculosis, L. Edelman
 10. Extravasation of opaque fluid in renal and ureter pathology, as demonstrated in urograms, E. Beer
 11. Five cases of total cystectomy for carcinoma of the bladder, etc.,
L. Mann
 12. Metastatic adeno-carcinoma of bladder, 12 years after hysterectomy,
E. Beer
 13. Unsuspected urinary pathology discovered by excretory urography,
W. Mencher
 14. Contradictions between excretory and retrograde uretero-pyelography,
M. Swick (by invitation)
 15. Remarks on trans-urethral prostatic resection, A. Hyman

SECTION OF OTOLARYNGOLOGY
Wednesday Evening, December 21, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES
- II. PAPER OF THE EVENING

Diathermy: results; good, bad or indifferent in nose, throat and ear conditions, Lee M. Hurd

Discussion, David H. Jones, Henry H. Forbes, Wallace W. Morrison

III. GENERAL DISCUSSION

IV. EXECUTIVE SESSION

Clinical demonstration of methods employed in diathermy at Polyclinic Hospital, 335 West 50 Street, New York, December 21, at 3 p.m., Lee M. Hurd, Wallace W. Morrison

SECTION OF OBSTETRICS AND GYNECOLOGY
Tuesday Evening, December 27, at 8:30 o'clock
Program arranged from the Clinic of
THE MARGARET HAGUE MATERNITY HOSPITAL
Jersey City, New Jersey

I. READING OF THE MINUTES

II. PRESENTATION OF CASES (ten minutes each)

- a. A case of erysipelas with placental transmission of streptococcus hemolyticus, Jacob Goldstein (by invitation)

Discussion, Arthur M. Reich

- b. Three cases of spontaneous rupture of the uterus, Edward G. Waters (by invitation)

Discussion, Samuel J. Scadron, Nicholas M. Alter (by invitation)

- c. A case of atelectasis of the newborn (typical lesions), Nicholas M. Alter (by invitation)

- d. A case of conservative treatment of grave renal infection complicating pregnancy, James F. Norton (by invitation), V. P. Butler (by invitation)

Discussion, Isador W. Kahn.

III. PAPERS OF THE EVENING (fifteen minutes each)

- a. Some observations on the blood sugar level during eclamptic convulsions, Jessie D. Read (by invitation)

Discussion, Jean Corwin (by invitation)

- b. The incidence and treatment of eclampsia, an analysis of 123 cases, Joseph Binder (by invitation)

Discussion, Walter B. Mount (by invitation)

- c. Some changes occurring in the urinary tract during pregnancy, Irving J. Strumpf (by invitation)

Discussion, Meredith F. Campbell

IV. GENERAL DISCUSSION

V. EXECUTIVE SESSION

NEW YORK ROENTGEN SOCIETY

In affiliation with

THE NEW YORK ACADEMY OF MEDICINE

Monday Evening, December 19, at 8:30 o'clock

ORDER

- I. 8:30 to 9:00 o'clock

Demonstration and discussion of interesting cases

50 BULLETIN of the NEW YORK ACADEMY of -

- II. 9:00 o'clock
Mediastinal tumors and their differentiation, George
delphia, Pa. (by invitation)
III. GENERAL DISCUSSION
IV. EXECUTIVE SESSION

NEW YORK MEETING
of the
SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE
Under the auspices of
THE NEW YORK ACADEMY OF MEDICINE

Wednesday Evening, December 21, at 8:15 o'clock

1. Etiology of an Uncomplicated Coryza in the Domestic Fowl,
(Introduced by C. Ten Broeck)
2. Herpes Antiviral Substances: Distribution in various Age
Apparent Absence in Individuals Susceptible to Poliomye-
Weyer (Introduced, by S. Flexner)
3. Variation of *H. influenzae* During Acute Respiratory Infec-
Chimpanzee, A. R. Dochez, K. C. Mills, Y. Kneeland, Jr.
4. Removal of Intravenously Injected Antigen by Circulating
J. T. Culbertson (Introduced by F. P. Gay)
5. A Syndrome Produced in the Dog by Inclusion of Oxidized Fe-
Diet, D. V. Whipple (Introduced by D. W. Wilson)
6. Blood Volume in Normal Chicks and in Chicks with Nutritional I-
lomalacia, A. M. Pappenheimer, S. Graff
7. The Central Nervous System in Relation to the Digestive Fu-
J. H. Ferguson (Introduced by J. F. Fulton)
8. Comparative Frequency of Peptic Ulcers after Deprivation of Bi-
Pancreatic Juice, B. N. Berg, T. F. Zucker

NEW YORK PATHOLOGICAL SOCIETY
Thursday Evening, December 22, at 8:30 o'clock
ORDER

- I. PRESENTATION OF PATHOLOGICAL SPECIMENS
- II. PAPERS OF THE EVENING
- a. The comparative anatomy of the semilunar cartilages of the h-
joint, Henry L. Jaffe
 - b. A case of moniliosis with meningitis, Lawrence W. Smith
 - c. Myeloid leukemia with osteosclerosis, Sheldon A. Jacobson (by i-
vitation)
 - d. Multiple hemangioblastomas of cord with syringomyelia and cyst
of pancreas and kidneys (partial Lindau's disease), Abner Wol-
(by invitation), Sigmund Wilens (by invitation)
- III. EXECUTIVE SESSION
-

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Edward F. Hartung.....	115 East 61 Street
Locke Mackenzie.....	535 Park Avenue
Sidney D. Leader.....	770 West End Avenue
Isidor Apfelberg.....	239 East 19 Street
Emmett A. Dooley.....	135 East 65 Street
Jacques M. Lewis.....	495 West End Avenue
S. Bernard Wortis.....	410 East 57 Street
George A. Blakeslee.....	105 East 53 Street
Otto V. M. Schmidt.....	111 East 61 Street
Thomas D. Van Orden.....	47 East 66 Street
Hugh M. Hicks.....	121 East 60 Street
Michael Ringer.....	3 West 73 Street

ASSOCIATE FELLOWS ELECTED

Erwin Brand.....	722 West 168 Street
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DEATHS OF FELLOWS OF THE ACADEMY

HENRY SMITH BARTHOLOMEW, M.D., Napanoch, N. Y., graduated in medicine from the University of the State of New York in 1897; elected a Fellow of the Academy February 3, 1915; died, December 20, 1932. Dr. Bartholomew was Physician and Surgeon to Veteran's Memorial Hospital, Ellenville, N. Y. and had served as health officer of Napanoch.

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<i>Obstetrics and Gynecology, 4th Tuesday</i>
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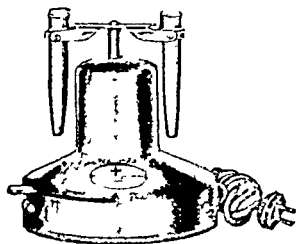
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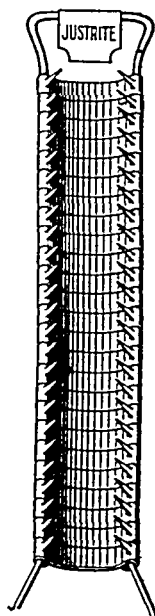
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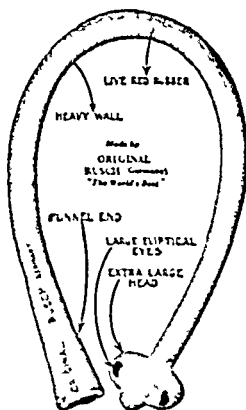
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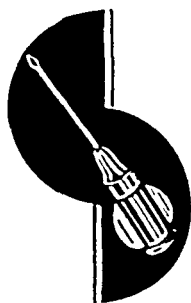
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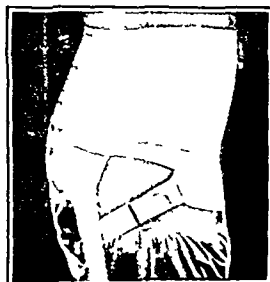
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